SEQUENCE LISTING

<110> Bhatia, Ajay
Probst, Peter

<120> COMPOUNDS AND METHODS FOR TREATMENT
AND DIAGNOSIS OF CHLAMYDIAL INFECTION

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<213> Chlamydia trachomatis

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<212> DNA
<213> Chlamydia trachomatis

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<210> 11
<211> 1474
<212> DNA
<213> Chlamydia trachomatis

<400> 11
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<210> 12
<211> 2017
<212> DNA
<213> Chlamydia trachomatis

<400> 12
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<210> 13
<211> 1171
<212> DNA
<213> Chlamydia trachomatis

<400> 13
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<210> 14
<211> 877
<212> DNA
<213> Chlamydia trachomatis

<400> 14
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actccacgta accgcttgca aaaaaggtcc gtataag 877

<210> 15
<211> 396
<212> DNA
<213> Chlamydia trachomatis serovar E

<400> 15
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ttggagcgtg ggcgctcgag cagctttgtg ggagtgcgga tgtgcgactt taggggcttc 120
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gtctcgagca agttttgatg ccgatacgat tcgtat 396

<210> 16
<211> 516
<212> DNA
<213> Chlamydia trachomatis serovar E

<400> 16
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gagatattgt ttttaaagga aattcttctt tcagagcaca aggatccgat gccatctatt 180
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aagttcctca atgtattcat gtacaacaag gaagccttga gttgctaaat ggagctacat 420
tatgtagtta tggttttaaa caagatgctg gagctaagtt ggtattggct tctggatcta 480
aactgaagat tttagattca ggaactcctg tacaag 516

<210> 17
<211> 723
<212> DNA
<213> Chlamydia trachomatis serovar E

<400> 17
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caggggcaga gaacggctca attatctcag ctaatggcga caatttaacg attaccggac 120
aaaaccatac attatcattt acagattctc aagggccagt tcttcaaaat tatgccttca 180
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aca 723

<210> 18
<211> 1377
<212> DNA
<213> Chlamydia trachomatis serovar E

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<210> 19
<211> 1736
<212> DNA
<213> Chlamydia trachomatis serovar E

<400> 19
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<210> 20
<211> 1135
<212> DNA
<213> Chlamydia trachomatis serovar E

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<210> 21
<211> 731
<212> DNA
<213> Chlamydia trachomatis serovar E

<400> 21
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<210> 22
<211> 1181
<212> DNA
<213> Chlamydia trachomatis serovar E

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<210> 23
<211> 167
<212> DNA
<213> Chlamydia trachomatis serovar E

<400> 23
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tcgagccctc ttccctgagg attttttagg ggagatccat tcttcca 167

<210> 24
<211> 1265
<212> DNA
<213> Chlamydia trachomatis serovar E

<400> 24
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ttaaaggaaa agcatctgta tgtactggat atgggagctt tgattgcagg tgccaagtat 180
cgaggagagt ttgaagagcg gttaaaaagt gtattgaagg gtgtagaagc ttctgaaggc 240
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gaaac 1265

<210> 25
<211> 463
<212> DNA
<213> Chlamydia trachomatis serovar E

<400> 25
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aatgtcgtca acggagcaac caagcacgac tgcaccccgc tcttcaaaat ctaccaatct 240
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gagcactaca tacttaccac gaaagtctgc tagagagatt tctttctctt ctccacaaac 360
aacggcttta ccagaaaaat ccggagcctg tcttccaatt agtgatccca taatactcct 420
cctagaaaga aacaacgcac cagagaggat ttgaacctct gac 463

<210> 26
<211> 636
<212> DNA

<213> Chlamydia trachomatis serovar E

<400> 26
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<210> 27
<211> 1797
<212> DNA
<213> Chlamydia trachomatis serE

<400> 27
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<210> 28
<211> 1983
<212> DNA
<213> Chlamydia trachomatis serE

<400> 28
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aaggcgtccg aagcgagtcc ttcagcatcg tcctctgtaa gcagctggag ttttttatcc 180
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taa 1983

<210> 29
<211> 1224
<212> DNA
<213> Chlamydia trachomatis serE

<400> 29
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tgtaccgagg tcgttgttcg cata 1224

<210> 30
<211> 883
<212> DNA
<213> Chlamydia trachomatis serE

<400> 30
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<210> 31
<211> 393
<212> DNA
<213> Chlamydia trachomatis serE

<400> 31
agttgaaaaa ggctgtttct tgcattcaaa aaactatcga gcaagagaga tctattttgt 60
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gtgttcgtca tatgaactct ctcccagggc ttttaattgt aattgacccg ggctatgagc 360
gcattgctgt cgcagaagct ggaaaactag gca 393

<210> 32
<211> 2577
<212> DNA
<213> Chlamydia trachomatis serE

<400> 32
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<210> 33
<211> 554
<212> DNA
<213> Chlamydia trachomatis serE

<400> 33
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ttttttaaa ttaagtgtac ttccagctct tctcggactc tggctatttt ttactcctaa 180
tattcttaac tatttggatt cttctgttat tttatcagat aaaatttgcg gcgtcctttt 240
aattttatta tcagctttat ccttttataa tcctgttatt ttgcaactag gcatttttat 300
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ttccgcggca cgag 554

<210> 34
<211> 1433
<212> DNA

<213> Chlamydia trachomatis serE

<400> 34
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<210> 35
<211> 196
<212> DNA
<213> Chlamydia trachomatis

<400> 35
ctcgtgccga tgatacagca gtcgcagtga atcaaggtgg taaacgcaag ggagctgtat 60
gcgtctattt agaagtttgg cacctcgact acgaagattt ccttgaattg agaaagaata 120
caggggatga gcgtcgacgg gctcatgatg tcaatatagc tagctggatt ccagatcttt 180
tcttcaaacg tttaca 196

<210> 36
<211> 1990
<212> DNA
<213> Chlamydia trachomatis

<400> 36
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<210> 37
<211> 2093
<212> DNA
<213> Chlamydia trachomatis

<400> 37
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acaatactct tctcgagaag taggatgtga atggtagacc atattaggtg cctgctctat 2040
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<210> 38
<211> 1834
<212> DNA
<213> Chlamydia trachomatis

<400> 38
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tactattgat aagctgaata aactcgttac gctgcaaaat cagaataaat ctttaacaga 300
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caacaaaaat tctgcagatc aaattatcaa agatctggaa agacaaaaca taagttatga 420
agctgttctc actaacgcag gagaggttat caaagcttct tctgaagcgg gaattaagtt 480
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<210> 39
<211> 1180
<212> DNA
<213> Chlamydia trachomatis

<400> 39
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attatttttg ttaaaagaaa tacttaatga gttttattta attaacgaaa cgaaaagctt 180
gctaatgaaa attattcaca cagctatcga atttgctccg gtaatcaaag ccggaggcct 240

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cattatttct agaattgctg agcagaaagg tcctcacttt atgaaacagg ccattctcca 1140
tgcactagaa aacgcttaca cgctcattat tataggtacc 1180

<210> 40
<211> 1297
<212> DNA
<213> Chlamydia trachomatis

<400> 40
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tttgttgtat aatggataag aaattctctg aagataaaga ggctcctcca actaaaagac 120
cattaacatc agggcagagg gcaagtgagc gagcattatc ggctttcaca gatcctccgt 180
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agactggttc ataagctaga atgaaagagg cttgctcagg gagtttagat aatcctatag 360
tcagttgatt taaaagaata tcttgagttg ctccagattc ttgttcttct aaagtttctc 420
caatacacag aactggaatc attccactat ggatagctgc agcagctttt tcagcaagta 480
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<210> 41
<211> 1141
<212> DNA
<213> Chlamydia trachomatis

<400> 41
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taagaggggg agggattgct gctgttcagg atgggcagca gggagtgtca tcatctactt 780
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<210> 42
<211> 822
<212> DNA
<213> Chlamydia trachomatis

<400> 42
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agcttcaacg taagcattcc aaagctccgt acttacaata ttattgcgga tagagcgaat 180
taattctctt tttagtgatg gaagaggttt tttggggctg aagcgagcca aaagatcttt 240
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agtggttttt gctttttttcg caatctcatt ttagagattt ttttgatttg gacaaaagaa 780
aataaagtac ttcagattgt tttctaagtt tgtttgcata aa 822

<210> 43
<211> 1634
<212> DNA
<213> Chlamydia trachomatis

<400> 43
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aatggggtga gcat 1634

<210> 44
<211> 1862
<212> DNA
<213> Chlamydia trachomatis

<400> 44
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<210> 45
<211> 1668

<212> DNA
<213> Chlamydia trachomatis

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<210> 46
<211> 2010
<212> DNA
<213> Chlamydia trachomatis

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<210> 47
<211> 2044
<212> DNA
<213> Chlamydia trachomatis

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tctc 2044

<210> 48
<211> 3734
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<213> Chlamydia trachomatis

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<212> DNA
<213> Chlamydia pneumoniae

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<211> 801
<212> DNA
<213> Chlamydia pneumoniae

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<210> 51
<211> 252
<212> DNA
<213> Chlamydia pneumoniae

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tatttcgtag atcttgtgtt gcgtaagtca atcacatgtt tagatggtat aacaaccttt 240
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<210> 52
<211> 1185
<212> DNA
<213> Chlamydia pneumoniae

<400> 52

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<210> 53
<211> 1431
<212> DNA
<213> Chlamydia pneumoniae

<400> 53
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cctcattatc ctttaatttc caaattctct tcgtctcaag ttctttccga gcgttctttc 180
tattatgaat ttttaggcaa gcagcaagcc tctgcaattt cttattctta cgagggtctt 240
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<210> 54
<211> 1041
<212> DNA
<213> Chlamydia pneumoniae

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gaacattacc tcaatggatg tgcaaacaac tggcttccta ctgaagttcc tatggcaaga 180
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<210> 55
<211> 3135
<212> DNA
<213> Chlamydia pneumoniae

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<210> 56
<211> 1386
<212> DNA
<213> Chlamydia pneumoniae

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tccgaggttg taaagaagcc tcagaaagga tcagaaagga aacaagccaa aaaagaacct 180
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<210> 57
<211> 1731
<212> DNA

<213> Chlamydia pneumoniae

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<210> 58
<211> 1086
<212> DNA
<213> Chlamydia pneumoniae

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<211> 4830
<212> DNA
<213> Chlamydia pneumoniae

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<211> 591
<212> DNA
<213> Chlamydia pneumoniae

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<210> 61
<211> 1983
<212> DNA

<213> Chlamydia pneumoniae

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<211> 1860
<212> DNA
<213> Chlamydia pneumoniae

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<210> 63
<211> 1956
<212> DNA
<213> Chlamydia pneumoniae

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<210> 64
<211> 264
<212> DNA
<213> Chlamydia pneumoniae

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ctttccaaac atattgtaaa ataa                                       264


<210> 65
<211> 978
<212> PRT
<213> Chlamydia pneumoniae

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             20                  25                  30
Val Pro Pro Ile Thr Asn Gln Gly Glu Glu Ile Leu Leu Thr Ser Asp
         35                  40                  45
Phe Val Cys Ser Asn Phe Leu Gly Ala Ser Phe Ser Ser Ser Phe Ile
     50                  55                  60
Asn Ser Ser Ser Asn Leu Ser Leu Leu Gly Lys Gly Leu Ser Leu Thr
 65                  70                  75                  80
Phe Thr Ser Cys Gln Ala Pro Thr Asn Ser Asn Tyr Ala Leu Leu Ser
                 85                  90                  95
Ala Ala Glu Thr Leu Thr Phe Lys Asn Phe Ser Ser Ile Asn Phe Thr
            100                 105                 110
Gly Asn Gln Ser Thr Gly Leu Gly Gly Leu Ile Tyr Gly Lys Asp Ile
        115                 120                 125
Val Phe Gln Ser Ile Lys Asp Leu Ile Phe Thr Thr Asn Arg Val Ala
    130                 135                 140
Tyr Ser Pro Ala Ser Val Thr Thr Ser Ala Thr Pro Ala Ile Thr Thr
145                 150                 155                 160
Val Thr Thr Gly Ala Ser Ala Leu Gln Pro Thr Asp Ser Leu Thr Val
                165                 170                 175
Glu Asn Ile Ser Gln Ser Ile Lys Phe Phe Gly Asn Leu Ala Asn Phe
            180                 185                 190
Gly Ser Ala Ile Ser Ser Ser Pro Thr Ala Val Val Lys Phe Ile Asn
        195                 200                 205
Asn Thr Ala Thr Met Ser Phe Ser His Asn Phe Thr Ser Ser Gly Gly
    210                 215                 220
Gly Val Ile Tyr Gly Gly Ser Ser Leu Leu Phe Glu Asn Asn Ser Gly
225                 230                 235                 240
Cys Ile Ile Phe Thr Ala Asn Ser Cys Val Asn Ser Leu Lys Gly Val
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Ile Pro Thr Gly Thr Phe Glu Leu Lys Asn Asn Gln Gly Lys Cys Thr
        275                 280                 285
Phe Ser Tyr Asn Gly Thr Pro Asn Asp Ala Gly Ala Ile Tyr Ala Glu
    290                 295                 300
Thr Cys Asn Ile Val Gly Asn Gln Gly Ala Leu Leu Leu Asp Ser Asn
305                 310                 315                 320
Thr Ala Ala Arg Asn Gly Gly Ala Ile Cys Ala Lys Val Leu Asn Ile
                325                 330                 335
Gln Gly Arg Gly Pro Ile Glu Phe Ser Arg Asn Arg Ala Glu Lys Gly
            340                 345                 350
Gly Ala Ile Phe Ile Gly Pro Ser Val Gly Asp Pro Ala Lys Gln Thr
        355                 360                 365
Ser Thr Leu Thr Ile Leu Ala Ser Glu Gly Asp Ile Ala Phe Gln Gly
    370                 375                 380
Asn Met Leu Asn Thr Lys Pro Gly Ile Arg Asn Ala Ile Thr Val Glu
385                 390                 395                 400
Ala Gly Gly Glu Ile Val Ser Leu Ser Ala Gln Gly Gly Ser Arg Leu
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Val Phe Tyr Asp Pro Ile Thr His Ser Leu Pro Thr Thr Ser Pro Ser
            420                 425                 430
Asn Lys Asp Ile Thr Ile Asn Ala Asn Gly Ala Ser Gly Ser Val Val
        435                 440                 445
Phe Thr Ser Lys Gly Leu Ser Ser Thr Glu Leu Leu Leu Pro Ala Asn
    450                 455                 460
Thr Thr Thr Ile Leu Leu Gly Thr Val Lys Ile Ala Ser Gly Glu Leu
465                 470                 475                 480
Lys Ile Thr Asp Asn Ala Val Val Asn Val Leu Gly Phe Ala Thr Gln
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Gly Ser Gly Gln Leu Thr Leu Gly Ser Gly Gly Thr Leu Gly Leu Ala
            500                 505                 510
Thr Pro Thr Gly Ala Pro Ala Ala Val Asp Phe Thr Ile Gly Lys Leu
        515                 520                 525
Ala Phe Asp Pro Phe Ser Phe Leu Lys Arg Asp Phe Val Ser Ala Ser
    530                 535                 540
Val Asn Ala Gly Thr Lys Asn Val Thr Leu Thr Gly Ala Leu Val Leu
545                 550                 555                 560
Asp Glu His Asp Val Thr Asp Leu Tyr Asp Met Val Ser Leu Gln Ser
                565                 570                 575
Pro Val Ala Ile Pro Ile Ala Val Phe Lys Gly Ala Thr Val Thr Lys
            580                 585                 590
Thr Gly Phe Pro Asp Gly Glu Ile Ala Thr Pro Ser His Tyr Gly Tyr
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Gln Gly Lys Trp Ser Tyr Thr Trp Ser Arg Pro Leu Leu Ile Pro Ala
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Pro Asp Gly Gly Phe Pro Gly Gly Pro Ser Pro Ser Ala Asn Thr Leu
625                 630                 635                 640
Tyr Ala Val Trp Asn Ser Asp Thr Leu Val Arg Ser Thr Tyr Ile Leu
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Asp Pro Glu Arg Tyr Gly Glu Ile Val Ser Asn Ser Leu Trp Ile Ser
            660                 665                 670
Phe Leu Gly Asn Gln Ala Phe Ser Asp Ile Leu Gln Asp Val Leu Leu
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Ile Asp His Pro Gly Leu Ser Ile Thr Ala Lys Ala Leu Gly Ala Tyr
    690                 695                 700
Val Glu His Thr Pro Arg Gln Gly His Glu Gly Phe Ser Gly Arg Tyr
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705 710 715 720
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725 730 735
Leu Gly Leu Ser Phe Gly Gln Leu Tyr Gly Lys Thr Asn Ala Asn Pro
740 745 750
Tyr Asp Ser Arg Cys Ser Glu Gln Met Tyr Leu Leu Ser Phe Phe Gly
755 760 765
Gln Phe Pro Ile Val Thr Gln Lys Ser Glu Ala Leu Ile Ser Trp Lys
770 775 780
Ala Ala Tyr Gly Tyr Ser Lys Asn His Leu Asn Thr Thr Tyr Leu Arg
785 790 795 800
Pro Asp Lys Ala Pro Lys Ser Gln Gly Gln Trp His Asn Asn Ser Tyr
805 810 815
Tyr Val Leu Ile Ser Ala Glu His Pro Phe Leu Asn Trp Cys Leu Leu
820 825 830
Thr Arg Pro Leu Ala Gln Ala Trp Asp Leu Ser Gly Phe Ile Ser Ala
835 840 845
Glu Phe Leu Gly Gly Trp Gln Ser Lys Phe Thr Glu Thr Gly Asp Leu
850 855 860
Gln Arg Ser Phe Ser Arg Gly Lys Gly Tyr Asn Val Ser Leu Pro Ile
865 870 875 880
Gly Cys Ser Ser Gln Trp Phe Thr Pro Phe Lys Lys Ala Pro Ser Thr
885 890 895
Leu Thr Ile Lys Leu Ala Tyr Lys Pro Asp Ile Tyr Arg Val Asn Pro
900 905 910
His Asn Ile Val Thr Val Val Ser Asn Gln Glu Ser Thr Ser Ile Ser
915 920 925
Gly Ala Asn Leu Arg Arg His Gly Leu Phe Val Gln Ile His Asp Val
930 935 940
Val Asp Leu Thr Glu Asp Thr Gln Ala Phe Leu Asn Tyr Thr Phe Asp
945 950 955 960
Gly Lys Asn Gly Phe Thr Asn His Arg Val Ser Thr Gly Leu Lys Ser
965 970 975
Thr Phe

<210> 66
<211> 266
<212> PRT
<213> Chlamydia pneumoniae

<400> 66
Met His Ser Lys Phe Leu Ser Arg Arg Lys Lys Asn Ser Ser His Lys
5 10 15
Glu Glu Thr Ser Trp Asp Cys Ile Ala Ser Ser Tyr Asn Lys Ile Val
20 25 30
Gln Asp Lys Gly His Tyr Tyr His Arg Glu Thr Ile Leu Pro Gln Leu
35 40 45
Leu Pro Ser Leu Thr Leu Gly Ser Lys Ser Ser Val Leu Asp Ile Gly
50 55 60
Cys Gly Gln Gly Phe Leu Glu Arg Ala Leu Pro Lys Glu Cys Arg Tyr
65 70 75 80
Leu Gly Ile Asp Ile Ser Ser Arg Leu Ile Ala Leu Ala Lys Lys Met
85 90 95
Arg Ser Val Asn Ser His Gln Phe Lys Val Ala Asp Leu Ser Lys Arg
100 105 110
Leu Glu Phe Val Glu Pro Thr Leu Phe Ser His Ala Val Ala Ile Leu

```
        115                 120                 125
Ser Leu Gln Asn Met Glu Phe Pro Gly Glu Ala Ile Arg Asn Thr Ala
    130                 135                 140
Thr Leu Leu Glu Pro Leu Gly Gln Phe Phe Ile Val Leu Asn His Pro
145                 150                 155                 160
Cys Phe Arg Ile Pro Arg Ala Ser Ser Trp His Tyr Asp Glu Asn Lys
                165                 170                 175
Lys Ala Ile Ser Arg His Ile Asp Arg Tyr Leu Ser Pro Met Lys Ile
            180                 185                 190
Pro Ile Met Ala His Pro Gly Gln Lys Asp Ser Pro Ser Thr Leu Ser
        195                 200                 205
Phe His Phe Pro Leu Ser Tyr Trp Phe Lys Glu Leu Ser Ser His Gly
    210                 215                 220
Phe Leu Val Ser Gly Leu Glu Glu Trp Thr Ser Ser Lys Thr Ser Thr
225                 230                 235                 240
Gly Lys Arg Ala Lys Ala Glu Asn Leu Cys Arg Lys Glu Phe Pro Leu
                245                 250                 255
Phe Leu Met Ile Ser Cys Ile Lys Ile Lys
            260                 265
```

<210> 67
<211> 83
<212> PRT
<213> Chlamydia pneumoniae

<400> 67

```
Met Lys Gln Gln His Asn Arg Lys Ala Leu Ser Arg Lys Ile Gly Thr
                5                  10                  15
Val Lys Lys Gln Ala Lys Phe Ala Gly Ser Phe Leu Asp Glu Ile Lys
            20                  25                  30
Lys Ile Glu Trp Val Ser Lys His Asp Leu Lys Lys Tyr Ile Lys Val
        35                  40                  45
Val Leu Ile Ser Ile Phe Gly Phe Gly Phe Ala Ile Tyr Phe Val Asp
    50                  55                  60
Leu Val Leu Arg Lys Ser Ile Thr Cys Leu Asp Gly Ile Thr Thr Phe
65                  70                  75                  80
Leu Phe Gly
```

<210> 68
<211> 394
<212> PRT
<213> Chlamydia pneumoniae

<400> 68

```
Met Ser Lys Glu Thr Phe Gln Arg Asn Lys Pro His Ile Asn Ile Gly
                5                  10                  15
Thr Ile Gly His Val Asp His Gly Lys Thr Thr Leu Thr Ala Ala Ile
            20                  25                  30
Thr Arg Ala Leu Ser Gly Asp Gly Leu Ala Ser Phe Arg Asp Tyr Ser
        35                  40                  45
Ser Ile Asp Asn Thr Pro Glu Glu Lys Ala Arg Gly Ile Thr Ile Asn
    50                  55                  60
Ala Ser His Val Glu Tyr Glu Thr Pro Asn Arg His Tyr Ala His Val
65                  70                  75                  80
Asp Cys Pro Gly His Ala Asp Tyr Val Lys Asn Met Ile Thr Gly Ala
```

```
                85                  90                  95
Ala Gln Met Asp Gly Ala Ile Leu Val Val Ser Ala Thr Asp Gly Ala
            100                 105                 110
Met Pro Gln Thr Lys Glu His Ile Leu Leu Ala Arg Gln Val Gly Val
        115                 120                 125
Pro Tyr Ile Val Val Phe Leu Asn Lys Val Asp Met Ile Ser Gln Glu
    130                 135                 140
Asp Ala Glu Leu Ile Asp Leu Val Glu Met Glu Leu Ser Glu Leu Leu
145                 150                 155                 160
Glu Glu Lys Gly Tyr Lys Gly Cys Pro Ile Ile Arg Gly Ser Ala Leu
                165                 170                 175
Lys Ala Leu Glu Gly Asp Ala Asn Tyr Ile Glu Lys Val Arg Glu Leu
            180                 185                 190
Met Gln Ala Val Asp Asp Asn Ile Pro Thr Pro Glu Arg Glu Ile Asp
        195                 200                 205
Lys Pro Phe Leu Met Pro Ile Glu Asp Val Phe Ser Ile Ser Gly Arg
    210                 215                 220
Gly Thr Val Val Thr Gly Arg Ile Glu Arg Gly Ile Val Lys Val Ser
225                 230                 235                 240
Asp Lys Val Gln Leu Val Gly Leu Gly Glu Thr Lys Glu Thr Ile Val
                245                 250                 255
Thr Gly Val Glu Met Phe Arg Lys Glu Leu Pro Glu Gly Arg Ala Gly
            260                 265                 270
Glu Asn Val Gly Leu Leu Leu Arg Gly Ile Gly Lys Asn Asp Val Glu
        275                 280                 285
Arg Gly Met Val Val Cys Gln Pro Asn Ser Val Lys Pro His Thr Lys
    290                 295                 300
Phe Lys Ser Ala Val Tyr Val Leu Gln Lys Glu Glu Gly Gly Arg His
305                 310                 315                 320
Lys Pro Phe Phe Ser Gly Tyr Arg Pro Gln Phe Phe Phe Arg Thr Thr
                325                 330                 335
Asp Val Thr Gly Val Val Thr Leu Pro Glu Gly Thr Glu Met Val Met
            340                 345                 350
Pro Gly Asp Asn Val Glu Leu Asp Val Glu Leu Ile Gly Thr Val Ala
        355                 360                 365
Leu Glu Glu Gly Met Arg Phe Ala Ile Arg Glu Gly Gly Arg Thr Ile
    370                 375                 380
Gly Ala Gly Thr Ile Ser Lys Ile Asn Ala
385                 390
```

<210> 69
<211> 476
<212> PRT
<213> Chlamydia pneumoniae

<400> 69

```
Met Arg Ile Val Gln Val Ala Val Glu Phe Thr Pro Ile Val Lys Val
                5                   10                  15
Gly Gly Leu Gly Asp Ala Val Ala Ser Leu Ser Lys Glu Leu Ala Lys
            20                  25                  30
Gln Asn Asp Val Glu Val Leu Leu Pro His Tyr Pro Leu Ile Ser Lys
        35                  40                  45
Phe Ser Ser Ser Gln Val Leu Ser Glu Arg Ser Phe Tyr Tyr Glu Phe
    50                  55                  60
Leu Gly Lys Gln Gln Ala Ser Ala Ile Ser Tyr Ser Tyr Glu Gly Leu
65                  70                  75                  80
```

```
Thr Leu Thr Ile Ile Thr Leu Asp Ser Gln Ile Glu Leu Phe Ser Thr
                 85                  90                  95
Thr Ser Val Tyr Ser Glu Asn Asn Val Val Arg Phe Ser Ala Phe Ala
            100                 105                 110
Ala Ala Ala Ala Ala Tyr Leu Gln Glu Ala Asp Pro Ala Asp Ile Val
        115                 120                 125
His Leu His Asp Trp His Val Gly Leu Leu Ala Gly Leu Leu Lys Asn
    130                 135                 140
Pro Leu Asn Pro Val His Ser Lys Ile Val Phe Thr Ile His Asn Phe
145                 150                 155                 160
Gly Tyr Arg Gly Tyr Cys Ser Thr Gln Leu Leu Ala Ala Ser Gln Ile
                165                 170                 175
Asp Asp Phe His Leu Ser His Tyr Gln Leu Phe Arg Asp Pro Gln Thr
            180                 185                 190
Ser Val Leu Met Lys Gly Ala Leu Tyr Cys Ser Asp Tyr Ile Thr Thr
        195                 200                 205
Val Ser Leu Thr Tyr Val Gln Glu Ile Ile Asn Asp Tyr Ser Asp Tyr
    210                 215                 220
Glu Leu His Asp Ala Ile Leu Ala Arg Asn Ser Val Phe Ser Gly Ile
225                 230                 235                 240
Ile Asn Gly Ile Asp Glu Asp Val Trp Asn Pro Lys Thr Asp Pro Ala
                245                 250                 255
Leu Ala Val Gln Tyr Asp Ala Ser Leu Leu Ser Glu Pro Asp Val Leu
            260                 265                 270
Phe Thr Lys Lys Glu Glu Asn Arg Ala Val Leu Tyr Glu Lys Leu Gly
        275                 280                 285
Ile Ser Ser Asp Tyr Phe Pro Leu Ile Cys Val Ile Ser Arg Ile Val
    290                 295                 300
Glu Glu Lys Gly Pro Glu Phe Met Lys Glu Ile Ile Leu His Ala Met
305                 310                 315                 320
Glu His Ser Tyr Ala Phe Ile Leu Ile Gly Thr Ser Gln Asn Glu Val
                325                 330                 335
Leu Leu Asn Glu Phe Arg Asn Leu Gln Asp Cys Leu Ala Ser Ser Pro
            340                 345                 350
Asn Ile Arg Leu Ile Leu Asp Phe Asn Asp Pro Leu Ala Arg Leu Thr
        355                 360                 365
Tyr Ala Ala Ala Asp Met Ile Cys Ile Pro Ser His Arg Glu Ala Cys
    370                 375                 380
Gly Leu Thr Gln Leu Ile Ala Met Arg Tyr Gly Thr Val Pro Leu Val
385                 390                 395                 400
Arg Lys Thr Gly Gly Leu Ala Asp Thr Val Ile Pro Gly Val Asn Gly
                405                 410                 415
Phe Thr Phe Phe Asp Thr Asn Asn Phe Asn Glu Phe Arg Ala Met Leu
            420                 425                 430
Ser Asn Ala Val Thr Thr Tyr Arg Gln Glu Pro Asp Val Trp Leu Asn
        435                 440                 445
Leu Ile Glu Ser Gly Met Leu Arg Ala Ser Gly Leu Asp Ala Met Ala
    450                 455                 460
Lys His Tyr Val Asn Leu Tyr Gln Ser Leu Leu Ser
465                 470                 475
```

<210> 70
<211> 346
<212> PRT
<213> Chlamydia pneumoniae

<400> 70
Met Glu Ala Asp Ile Leu Asp Gly Lys Leu Lys Arg Val Glu Val Ser
5 10 15
Lys Lys Gly Leu Val Asn Cys Asn Gln Val Asp Val Asn Gln Leu Val
20 25 30
Pro Ile Lys Tyr Lys Trp Ala Trp Glu His Tyr Leu Asn Gly Cys Ala
35 40 45
Asn Asn Trp Leu Pro Thr Glu Val Pro Met Ala Arg Asp Ile Glu Leu
50 55 60
Trp Lys Ser Asp Glu Leu Ser Glu Asp Glu Arg Arg Val Ile Leu Leu
65 70 75 80
Asn Leu Gly Phe Phe Ser Thr Ala Glu Ser Leu Val Gly Asn Asn Ile
85 90 95
Val Leu Ala Ile Phe Lys His Ile Thr Asn Pro Glu Ala Arg Gln Tyr
100 105 110
Leu Leu Arg Gln Ala Phe Glu Glu Ala Val His Thr His Thr Phe Leu
115 120 125
Tyr Ile Cys Glu Ser Leu Gly Leu Asp Glu Gly Glu Val Phe Asn Ala
130 135 140
Tyr Asn Glu Arg Ala Ser Ile Arg Ala Lys Asp Asp Phe Gln Met Thr
145 150 155 160
Leu Thr Val Asp Val Leu Asp Pro Asn Phe Ser Val Gln Ser Ser Glu
165 170 175
Gly Leu Gly Gln Phe Ile Lys Asn Leu Val Gly Tyr Tyr Ile Ile Met
180 185 190
Glu Gly Ile Phe Phe Tyr Ser Gly Phe Val Met Ile Leu Ser Phe His
195 200 205
Arg Gln Asn Lys Met Thr Gly Ile Gly Glu Gln Tyr Gln Tyr Ile Leu
210 215 220
Arg Asp Glu Thr Ile His Leu Asn Phe Gly Ile Asp Leu Ile Asn Gly
225 230 235 240
Ile Lys Glu Glu Asn Pro Glu Val Trp Thr Thr Glu Leu Gln Glu Glu
245 250 255
Ile Val Ala Leu Ile Glu Lys Ala Val Glu Leu Glu Ile Glu Tyr Ala
260 265 270
Lys Asp Cys Leu Pro Arg Gly Ile Leu Gly Leu Arg Ser Ser Met Phe
275 280 285
Ile Asp Tyr Val Arg His Ile Ala Asp Arg Arg Leu Glu Arg Ile Gly
290 295 300
Leu Lys Pro Ile Tyr His Ser Arg Asn Pro Phe Pro Trp Met Ser Glu
305 310 315 320
Thr Met Asp Leu Asn Lys Glu Lys Asn Phe Phe Glu Thr Arg Val Thr
325 330 335
Glu Tyr Gln Thr Ala Gly Asn Leu Ser Trp
340 345

<210> 71
<211> 1044
<212> PRT
<213> Chlamydia pneumoniae

<400> 71
Met Val Glu Val Glu Glu Lys His Tyr Thr Ile Val Lys Arg Asn Gly
5 10 15
Met Phe Val Pro Phe Asn Gln Asp Arg Ile Phe Gln Ala Leu Glu Ala
20 25 30

```
Ala Phe Arg Asp Thr Arg Ser Leu Glu Thr Ser Ser Pro Leu Pro Lys
          35                  40                  45
Asp Leu Glu Glu Ser Ile Ala Gln Ile Thr His Lys Val Val Lys Glu
      50                  55                  60
Val Leu Ala Lys Ile Ser Glu Gly Gln Val Val Thr Val Glu Arg Ile
 65                  70                  75                  80
Gln Asp Leu Val Glu Ser Gln Leu Tyr Ile Ser Gly Leu Gln Asp Val
                 85                  90                  95
Ala Arg Asp Tyr Ile Val Tyr Arg Asp Gln Arg Lys Ala Glu Arg Gly
            100                 105                 110
Asn Ser Ser Ser Ile Ile Ala Ile Ile Arg Arg Asp Gly Gly Ser Ala
        115                 120                 125
Lys Phe Asn Pro Met Lys Ile Ser Ala Ala Leu Glu Lys Ala Phe Arg
    130                 135                 140
Ala Thr Leu Gln Ile Asn Gly Met Thr Pro Pro Ala Thr Leu Ser Glu
145                 150                 155                 160
Ile Asn Asp Leu Thr Leu Arg Ile Val Glu Asp Val Leu Ser Leu His
                165                 170                 175
Gly Glu Glu Ala Ile Asn Leu Glu Glu Ile Gln Asp Ile Val Glu Lys
            180                 185                 190
Gln Leu Met Val Ala Gly Tyr Tyr Asp Val Ala Lys Asn Tyr Ile Leu
        195                 200                 205
Tyr Arg Glu Ala Arg Ala Arg Ala Arg Ala Asn Lys Asp Gln Asp Gly
    210                 215                 220
Gln Glu Glu Phe Val Pro Gln Glu Glu Thr Tyr Val Val Gln Lys Glu
225                 230                 235                 240
Asp Gly Thr Thr Tyr Leu Leu Arg Lys Thr Asp Leu Glu Lys Arg Phe
                245                 250                 255
Ser Trp Ala Cys Lys Arg Phe Pro Lys Thr Thr Asp Ser Gln Leu Leu
            260                 265                 270
Ala Asp Met Ala Phe Met Asn Leu Tyr Ser Gly Ile Lys Glu Asp Glu
        275                 280                 285
Val Thr Thr Ala Cys Ile Met Ala Ala Arg Ala Asn Ile Glu Arg Glu
    290                 295                 300
Pro Asp Tyr Ala Phe Ile Ala Ala Glu Leu Leu Thr Ser Ser Leu Tyr
305                 310                 315                 320
Glu Glu Thr Leu Gly Cys Ser Ser Gln Asp Pro Asn Leu Ser Glu Ile
                325                 330                 335
His Lys Lys His Phe Lys Glu Tyr Ile Leu Asn Gly Glu Glu Tyr Arg
            340                 345                 350
Leu Asn Pro Gln Leu Lys Asp Tyr Asp Leu Asp Ala Leu Ser Glu Val
        355                 360                 365
Leu Asp Leu Ser Arg Asp Gln Gln Phe Ser Tyr Met Gly Val Gln Asn
    370                 375                 380
Leu Tyr Asp Arg Tyr Phe Asn Leu His Glu Gly Arg Arg Leu Glu Thr
385                 390                 395                 400
Ala Gln Ile Phe Trp Met Arg Val Ser Met Gly Leu Ala Leu Asn Glu
                405                 410                 415
Gly Glu Gln Lys Asn Phe Trp Ala Ile Thr Phe Tyr Asn Leu Leu Ser
            420                 425                 430
Thr Phe Arg Tyr Thr Pro Ala Thr Pro Thr Leu Phe Asn Ser Gly Met
        435                 440                 445
Arg His Ser Gln Leu Ser Ser Cys Tyr Leu Ser Thr Val Lys Asp Asp
    450                 455                 460
Leu Ser His Ile Tyr Lys Val Ile Ser Asp Asn Ala Leu Leu Ser Lys
465                 470                 475                 480
Trp Ala Gly Gly Ile Gly Asn Asp Trp Thr Asp Val Arg Ala Thr Gly
```

```
                        485                           490                           495
Ala Val Ile Lys Gly Thr Asn Gly Lys Ser Gln Gly Val Ile Pro Phe
                500                           505                           510
Ile Lys Val Ala Asn Asp Thr Ala Ile Ala Val Asn Gln Gly Gly Lys
        515                           520                           525
Arg Lys Gly Ala Met Cys Val Tyr Leu Glu Asn Trp His Leu Asp Tyr
    530                           535                           540
Glu Asp Phe Leu Glu Leu Arg Lys Asn Thr Gly Asp Glu Arg Arg Arg
545                           550                           555                           560
Thr His Asp Ile Asn Thr Ala Ser Trp Ile Pro Asp Leu Phe Phe Lys
                565                           570                           575
Arg Leu Glu Lys Lys Gly Met Trp Thr Leu Phe Ser Pro Asp Asp Val
                580                           585                           590
Pro Gly Leu His Glu Ala Tyr Gly Leu Glu Phe Glu Lys Leu Tyr Glu
        595                           600                           605
Glu Tyr Glu Arg Lys Val Glu Ser Gly Glu Ile Arg Leu Tyr Lys Lys
    610                           615                           620
Val Glu Ala Glu Val Leu Trp Arg Lys Met Leu Ser Met Leu Tyr Glu
625                           630                           635                           640
Thr Gly His Pro Trp Ile Thr Phe Lys Asp Pro Ser Asn Ile Arg Ser
                645                           650                           655
Asn Gln Asp His Val Gly Val Val Arg Cys Ser Asn Leu Cys Thr Glu
                660                           665                           670
Ile Leu Leu Asn Cys Ser Glu Ser Glu Thr Ala Val Cys Asn Leu Gly
        675                           680                           685
Ser Ile Asn Leu Val Glu His Ile Arg Asn Asp Lys Leu Asp Glu Glu
    690                           695                           700
Lys Leu Lys Glu Thr Ile Ser Ile Ala Ile Arg Ile Leu Asp Asn Val
705                           710                           715                           720
Ile Asp Leu Asn Phe Tyr Pro Thr Pro Glu Ala Lys Gln Ala Asn Leu
                725                           730                           735
Thr His Arg Ala Val Gly Leu Gly Val Met Gly Phe Gln Asp Val Leu
                740                           745                           750
Tyr Glu Leu Asn Ile Ser Tyr Ala Ser Gln Glu Ala Val Glu Phe Ser
        755                           760                           765
Asp Glu Cys Ser Glu Ile Ile Ala Tyr Tyr Ala Ile Leu Ala Ser Ser
    770                           775                           780
Leu Leu Ala Lys Glu Arg Gly Thr Tyr Ala Ser Tyr Ser Gly Ser Lys
785                           790                           795                           800
Trp Asp Arg Gly Tyr Leu Pro Leu Asp Thr Ile Glu Leu Leu Lys Glu
                805                           810                           815
Thr Arg Gly Glu His Asn Val Leu Val Asp Thr Ser Ser Lys Lys Asp
                820                           825                           830
Trp Thr Pro Val Arg Asp Thr Ile Gln Lys Tyr Gly Met Arg Asn Ser
        835                           840                           845
Gln Val Met Ala Ile Ala Pro Thr Ala Thr Ile Ser Asn Ile Ile Gly
    850                           855                           860
Val Thr Gln Ser Ile Glu Pro Met Tyr Lys His Leu Phe Val Lys Ser
865                           870                           875                           880
Asn Leu Ser Gly Glu Phe Thr Ile Pro Asn Thr Tyr Leu Ile Lys Lys
                885                           890                           895
Leu Lys Glu Leu Gly Leu Trp Asp Ala Glu Met Leu Asp Asp Leu Lys
                900                           905                           910
Tyr Phe Asp Gly Ser Leu Leu Glu Ile Glu Arg Ile Pro Asn His Leu
        915                           920                           925
Lys Lys Leu Phe Leu Thr Ala Phe Glu Ile Glu Pro Glu Trp Ile Ile
    930                           935                           940
```

```
Glu Cys Thr Ser Arg Arg Gln Lys Trp Ile Asp Met Gly Val Ser Leu
945                 950                 955                 960
Asn Leu Tyr Leu Ala Glu Pro Asp Gly Lys Lys Leu Ser Asn Met Tyr
                965                 970                 975
Leu Thr Ala Trp Lys Lys Gly Leu Lys Thr Thr Tyr Tyr Leu Arg Ser
            980                 985                 990
Gln Ala Ala Thr Ser Val Glu Lys Ser Phe Ile Asp Ile Asn Lys Arg
        995                 1000                1005
Gly Ile Gln Pro Arg Trp Met Lys Asn Lys Ser Ala Ser Thr Ser Ile
    1010                1015                1020
Val Val Glu Arg Lys Thr Thr Pro Val Cys Ser Met Glu Glu Gly Cys
1025                1030                1035                1040
Glu Ser Cys Gln


<210> 72
<211> 461
<212> PRT
<213> Chlamydia pneumoniae

<400> 72
Met Met Ser Ser Lys Arg Thr Ser Lys Ile Ala Val Leu Ser Ile Leu
                  5                  10                  15
Leu Thr Phe Thr His Ser Ile Gly Phe Ala Asn Ala Asn Ser Ser Val
             20                  25                  30
Gly Leu Gly Thr Val Tyr Ile Thr Ser Glu Val Val Lys Lys Pro Gln
         35                  40                  45
Lys Gly Ser Glu Arg Lys Gln Ala Lys Lys Glu Pro Arg Ala Arg Lys
     50                  55                  60
Gly Tyr Leu Val Pro Ser Ser Arg Thr Leu Ser Ala Arg Ala Gln Lys
 65                  70                  75                  80
Met Lys Asn Ser Ser Arg Lys Glu Ser Ser Gly Gly Cys Asn Glu Ile
                 85                  90                  95
Ser Ala Asn Ser Thr Pro Arg Ser Val Lys Leu Arg Arg Asn Lys Arg
            100                 105                 110
Ala Glu Gln Lys Ala Ala Lys Gln Gly Phe Ser Ala Phe Ser Asn Leu
        115                 120                 125
Thr Leu Lys Ser Leu Leu Pro Lys Leu Pro Ser Lys Gln Lys Thr Ser
    130                 135                 140
Ile His Glu Arg Glu Lys Ala Thr Ser Arg Phe Val Asn Glu Ser Gln
145                 150                 155                 160
Leu Ser Ser Ala Arg Lys Arg Tyr Cys Thr Pro Ser Ser Ala Ala Pro
                165                 170                 175
Ser Leu Phe Leu Glu Thr Glu Ile Val Arg Ala Pro Val Glu Arg Thr
            180                 185                 190
Lys Glu Leu Gln Asp Asn Glu Ile His Ile Pro Val Val Gln Val Gln
        195                 200                 205
Thr Asn Pro Lys Glu Gln Asn Thr Lys Thr Thr Lys Gln Leu Ala Ser
    210                 215                 220
Gln Ala Ser Ile Gln Gln Ser Glu Gly Thr Glu Gln Ser Leu Arg Glu
225                 230                 235                 240
Leu Ala Gln Gly Ala Ser Leu Pro Val Leu Val Arg Ser Asn Pro Glu
                245                 250                 255
Val Ser Val Gln Arg Gln Lys Glu Glu Leu Leu Lys Glu Leu Val Ala
            260                 265                 270
Glu Arg Arg Gln Cys Lys Arg Lys Ser Val Arg Gln Ala Leu Glu Ala
```

```
        275                 280                 285
Arg Ser Leu Thr Lys Lys Val Ala Arg Gly Gly Ser Val Thr Ser Thr
    290                 295                 300
Leu Arg Tyr Asp Pro Glu Lys Ala Ala Glu Ile Lys Ser Arg Arg Asn
305                 310                 315                 320
Cys Lys Val Ser Pro Glu Ala Arg Glu Gln Lys Tyr Ser Ser Cys Lys
                325                 330                 335
Arg Asp Ala Arg Ala Asn Gly Lys Gln Asp Lys Thr Thr Pro Ser Glu
            340                 345                 350
Asp Ala Ser Gln Glu Glu Gln Gln Thr Gly Ala Gly Leu Val Arg Lys
        355                 360                 365
Thr Pro Lys Ser Gln Val Ala Ser Asn Ala Gln Asn Phe Tyr Arg Asn
    370                 375                 380
Ser Lys Asn Thr Asn Ile Asp Ser Tyr Leu Thr Ala Asn Gln Tyr Ser
385                 390                 395                 400
Cys Ser Ser Glu Glu Thr Asp Trp Pro Cys Ser Ser Cys Val Ser Lys
                405                 410                 415
Arg Arg Thr His Asn Ser Ile Ser Val Cys Thr Met Val Val Thr Val
            420                 425                 430
Ile Ala Met Ile Val Gly Ala Leu Ile Ile Ala Asn Ala Thr Glu Ser
        435                 440                 445
Gln Thr Thr Ser Asp Pro Thr Pro Pro Thr Pro Thr Pro
    450                 455                 460


<210> 73
<211> 576
<212> PRT
<213> Chlamydia pneumoniae

<400> 73
Met Thr Asp Phe Pro Thr His Phe Lys Gly Pro Lys Leu Asn Pro Ile
                  5                  10                  15
Lys Val Asn Pro Asn Phe Phe Glu Arg Asn Pro Lys Val Ala Arg Val
             20                  25                  30
Leu Gln Ile Thr Ala Val Val Leu Gly Ile Ile Ala Leu Leu Ser Gly
         35                  40                  45
Ile Val Leu Ile Ile Gly Thr Pro Leu Gly Ala Pro Ile Ser Met Ile
     50                  55                  60
Leu Gly Gly Cys Leu Leu Ala Ser Gly Gly Ala Leu Phe Val Gly Gly
 65                  70                  75                  80
Thr Ile Ala Thr Ile Leu Gln Ala Arg Asn Ser Tyr Lys Lys Ala Val
                 85                  90                  95
Asn Gln Lys Lys Leu Ser Glu Pro Leu Met Glu Arg Pro Glu Leu Lys
            100                 105                 110
Ala Leu Asp Tyr Ser Leu Asp Leu Lys Glu Val Trp Asp Leu His His
        115                 120                 125
Ser Val Val Lys His Leu Lys Lys Leu Asp Leu Asn Leu Ser Lys Thr
    130                 135                 140
Gln Arg Glu Val Leu Asn Gln Ile Lys Ile Asp Asp Glu Gly Pro Ser
145                 150                 155                 160
Leu Gly Glu Cys Ala Ala Met Ile Ser Glu Asn Tyr Asp Ala Cys Leu
                165                 170                 175
Lys Met Leu Ala Tyr Arg Glu Glu Leu Leu Lys Glu Gln Thr Gln Tyr
            180                 185                 190
Gln Glu Thr Arg Phe Asn Gln Asn Leu Thr His Arg Asn Lys Val Leu
        195                 200                 205
```

```
Leu Ser Ile Leu Ser Arg Ile Thr Asp Asn Ile Ser Lys Ala Gly Gly
    210                 215                 220
Val Phe Ser Leu Lys Phe Ser Thr Leu Ser Ser Arg Met Ser Arg Ile
225                 230                 235                 240
His Thr Thr Thr Thr Val Ile Leu Ala Leu Ser Ala Val Val Ser Val
                245                 250                 255
Met Val Val Ala Ala Leu Ile Pro Gly Gly Ile Leu Ala Leu Pro Ile
            260                 265                 270
Leu Leu Ala Val Ala Ile Ser Ala Gly Val Ile Val Thr Gly Leu Ser
        275                 280                 285
Tyr Leu Val Arg Gln Ile Leu Ser Asn Thr Lys Arg Asn Arg Gln Asp
    290                 295                 300
Phe Tyr Lys Asp Phe Val Lys Asn Val Asp Ile Glu Leu Leu Asn Gln
305                 310                 315                 320
Thr Val Thr Leu Gln Arg Phe Leu Phe Glu Met Leu Lys Gly Val Leu
                325                 330                 335
Lys Glu Glu Glu Glu Val Ser Leu Glu Gly Gln Asp Trp Tyr Thr Gln
            340                 345                 350
Tyr Ile Thr Asn Ala Pro Ile Glu Lys Arg Leu Ile Glu Glu Ile Arg
        355                 360                 365
Val Thr Tyr Lys Glu Ile Asp Ala Gln Thr Lys Lys Met Lys Thr Asp
    370                 375                 380
Leu Glu Phe Leu Glu Asn Glu Val Arg Ser Gly Arg Leu Ser Val Ala
385                 390                 395                 400
Ser Pro Ser Glu Asp Pro Ser Glu Thr Pro Ile Phe Thr Gln Gly Lys
                405                 410                 415
Glu Phe Ala Lys Leu Arg Arg Gln Thr Ser Gln Asn Ile Ser Thr Ile
            420                 425                 430
Tyr Gly Pro Asp Asn Glu Asn Ile Asp Pro Glu Phe Ser Leu Pro Trp
        435                 440                 445
Met Pro Lys Lys Glu Glu Glu Ile Asp His Ser Leu Glu Pro Val Thr
    450                 455                 460
Lys Leu Glu Pro Gly Ser Arg Glu Glu Leu Leu Leu Val Glu Gly Val
465                 470                 475                 480
Asn Pro Thr Leu Arg Glu Leu Asn Met Arg Ile Ala Leu Leu Gln Gln
                485                 490                 495
Gln Leu Ser Ser Val Arg Lys Trp Arg His Pro Arg Gly Glu His Tyr
            500                 505                 510
Gly Asn Val Ile Tyr Ser Asp Thr Glu Leu Asp Arg Ile Gln Met Leu
        515                 520                 525
Glu Gly Ala Phe Tyr Asn His Leu Arg Glu Ala Gln Glu Glu Ile Thr
    530                 535                 540
Gln Ser Leu Gly Asp Leu Val Asp Ile Gln Asn Arg Ile Leu Gly Ile
545                 550                 555                 560
Ile Val Glu Gly Asp Ser Asp Ser Arg Thr Glu Glu Glu Pro Gln Glu
                565                 570                 575
```

<210> 74
<211> 361
<212> PRT
<213> Chlamydia pneumoniae

<400> 74

```
Met Gln Gln Thr Val Ile Val Ala Met Ser Gly Gly Val Asp Ser Ser
                  5                  10                  15
Val Val Ala Tyr Leu Phe Lys Lys Phe Thr Asn Tyr Lys Val Ile Gly
```

```
                20                          25                          30
Leu Phe Met Lys Asn Trp Glu Glu Asp Ser Glu Gly Gly Leu Cys Ser
            35                      40                      45
Ser Thr Lys Asp Tyr Glu Asp Val Glu Arg Val Cys Leu Gln Leu Asp
        50                      55                      60
Ile Pro Tyr Tyr Thr Val Ser Phe Ala Lys Glu Tyr Arg Glu Arg Val
 65                     70                      75                      80
Phe Ala Arg Phe Leu Lys Glu Tyr Ser Leu Gly Tyr Thr Pro Asn Pro
                    85                      90                      95
Asp Ile Leu Cys Asn Arg Glu Ile Lys Phe Asp Leu Leu Gln Lys Lys
                100                     105                     110
Val Gln Glu Leu Gly Gly Asp Tyr Leu Ala Thr Gly His Tyr Cys Arg
            115                     120                     125
Leu Asn Thr Glu Leu Gln Glu Thr Gln Leu Leu Arg Gly Cys Asp Pro
        130                     135                     140
Gln Lys Asp Gln Ser Tyr Phe Leu Ser Gly Thr Pro Lys Ser Ala Leu
145                     150                     155                     160
His Asn Val Leu Phe Pro Leu Gly Glu Met Asn Lys Thr Glu Val Arg
                    165                     170                     175
Ala Ile Ala Ala Gln Ala Ala Leu Pro Thr Ala Glu Lys Lys Asp Ser
                180                     185                     190
Thr Gly Ile Cys Phe Ile Gly Lys Arg Pro Phe Lys Glu Phe Leu Glu
            195                     200                     205
Lys Phe Leu Pro Asn Lys Thr Gly Asn Val Ile Asp Trp Asp Thr Lys
        210                     215                     220
Glu Ile Val Gly Gln His Gln Gly Ala His Tyr Tyr Thr Ile Gly Gln
225                     230                     235                     240
Arg Arg Gly Leu Asp Leu Gly Gly Ser Glu Lys Pro Cys Tyr Val Val
                    245                     250                     255
Gly Lys Asn Ile Glu Glu Asn Ser Ile Tyr Ile Val Arg Gly Glu Asp
                260                     265                     270
His Pro Gln Leu Tyr Leu Arg Glu Leu Thr Ala Arg Glu Leu Asn Trp
            275                     280                     285
Phe Thr Pro Pro Lys Ser Gly Cys His Cys Ser Ala Lys Val Arg Tyr
        290                     295                     300
Arg Ser Pro Asp Glu Ala Cys Thr Ile Asp Tyr Ser Ser Gly Asp Glu
305                     310                     315                     320
Val Lys Val Arg Phe Ser Gln Pro Val Lys Ala Val Thr Pro Gly Gln
                    325                     330                     335
Thr Ile Ala Phe Tyr Gln Gly Asp Thr Cys Leu Gly Ser Gly Val Ile
                340                     345                     350
Asp Val Pro Met Ile Pro Ser Glu Gly
            355                     360
```

```
<210> 75
<211> 1609
<212> PRT
<213> Chlamydia pneumoniae

<400> 75
Met Val Ala Lys Lys Thr Val Arg Ser Tyr Arg Ser Ser Phe Ser His
                  5                      10                      15
Ser Val Ile Val Ala Ile Leu Ser Ala Gly Ile Ala Phe Glu Ala His
                20                      25                      30
Ser Leu His Ser Ser Glu Leu Asp Leu Gly Val Phe Asn Lys Gln Phe
            35                      40                      45
```

```
Glu Glu His Ser Ala His Val Glu Glu Ala Gln Thr Ser Val Leu Lys
     50                  55                  60
Gly Ser Asp Pro Val Asn Pro Ser Gln Lys Glu Ser Glu Lys Val Leu
 65                  70                  75                  80
Tyr Thr Gln Val Pro Leu Thr Gln Gly Ser Ser Gly Glu Ser Leu Asp
                 85                  90                  95
Leu Ala Asp Ala Asn Phe Leu Glu His Phe Gln His Leu Phe Glu Glu
            100                 105                 110
Thr Thr Val Phe Gly Ile Asp Gln Lys Leu Val Trp Ser Asp Leu Asp
        115                 120                 125
Thr Arg Asn Phe Ser Gln Pro Thr Gln Glu Pro Asp Thr Ser Asn Ala
    130                 135                 140
Val Ser Glu Lys Ile Ser Ser Asp Thr Lys Glu Asn Arg Lys Asp Leu
145                 150                 155                 160
Glu Thr Glu Asp Pro Ser Lys Lys Ser Gly Leu Lys Glu Val Ser Ser
                165                 170                 175
Asp Leu Pro Lys Ser Pro Glu Thr Ala Val Ala Ala Ile Ser Glu Asp
            180                 185                 190
Leu Glu Ile Ser Glu Asn Ile Ser Ala Arg Asp Pro Leu Gln Gly Leu
        195                 200                 205
Ala Phe Phe Tyr Lys Asn Thr Ser Ser Gln Ser Ile Ser Glu Lys Asp
    210                 215                 220
Ser Ser Phe Gln Gly Ile Ile Phe Ser Gly Ser Gly Ala Asn Ser Gly
225                 230                 235                 240
Leu Gly Phe Glu Asn Leu Lys Ala Pro Lys Ser Gly Ala Ala Val Tyr
                245                 250                 255
Ser Asp Arg Asp Ile Val Phe Glu Asn Leu Val Lys Gly Leu Ser Phe
            260                 265                 270
Ile Ser Cys Glu Ser Leu Glu Asp Gly Ser Ala Ala Gly Val Asn Ile
        275                 280                 285
Val Val Thr His Cys Gly Asp Val Thr Leu Thr Asp Cys Ala Thr Gly
    290                 295                 300
Leu Asp Leu Glu Ala Leu Arg Leu Val Lys Asp Phe Ser Arg Gly Gly
305                 310                 315                 320
Ala Val Phe Thr Ala Arg Asn His Glu Val Gln Asn Asn Leu Ala Gly
                325                 330                 335
Gly Ile Leu Ser Val Val Gly Asn Lys Gly Ala Ile Val Val Glu Lys
            340                 345                 350
Asn Ser Ala Glu Lys Ser Asn Gly Gly Ala Phe Ala Cys Gly Ser Phe
        355                 360                 365
Val Tyr Ser Asn Asn Glu Asn Thr Ala Leu Trp Lys Glu Asn Gln Ala
    370                 375                 380
Leu Ser Gly Gly Ala Ile Ser Ser Ala Ser Asp Ile Asp Ile Gln Gly
385                 390                 395                 400
Asn Cys Ser Ala Ile Glu Phe Ser Gly Asn Gln Ser Leu Ile Ala Leu
                405                 410                 415
Gly Glu His Ile Gly Leu Thr Asp Phe Val Gly Gly Gly Ala Leu Ala
            420                 425                 430
Ala Gln Gly Thr Leu Thr Leu Arg Asn Asn Ala Val Val Gln Cys Val
        435                 440                 445
Lys Asn Thr Ser Lys Thr His Gly Gly Ala Ile Leu Ala Gly Thr Val
    450                 455                 460
Asp Leu Asn Glu Thr Ile Ser Glu Val Ala Phe Lys Gln Asn Thr Ala
465                 470                 475                 480
Ala Leu Thr Gly Gly Ala Leu Ser Ala Asn Asp Lys Val Ile Ile Ala
                485                 490                 495
Asn Asn Phe Gly Glu Ile Leu Phe Glu Gln Asn Glu Val Arg Asn His
```

```
                500                 505                 510
Gly Gly Ala Ile Tyr Cys Gly Cys Arg Ser Asn Pro Lys Leu Glu Gln
        515                 520                 525
Lys Asp Ser Gly Glu Asn Ile Asn Ile Ile Gly Asn Ser Gly Ala Ile
    530                 535                 540
Thr Phe Leu Lys Asn Lys Ala Ser Val Leu Glu Val Met Thr Gln Ala
545                 550                 555                 560
Glu Asp Tyr Ala Gly Gly Gly Ala Leu Trp Gly His Asn Val Leu Leu
                565                 570                 575
Asp Ser Asn Ser Gly Asn Ile Gln Phe Ile Gly Asn Ile Gly Gly Ser
            580                 585                 590
Thr Phe Trp Ile Gly Glu Tyr Val Gly Gly Gly Ala Ile Leu Ser Thr
        595                 600                 605
Asp Arg Val Thr Ile Ser Asn Asn Ser Gly Asp Val Val Phe Lys Gly
    610                 615                 620
Asn Lys Gly Gln Cys Leu Ala Gln Lys Tyr Val Ala Pro Gln Glu Thr
625                 630                 635                 640
Ala Pro Val Glu Ser Asp Ala Ser Ser Thr Asn Lys Asp Glu Lys Ser
                645                 650                 655
Leu Asn Ala Cys Ser His Gly Asp His Tyr Pro Pro Lys Thr Val Glu
            660                 665                 670
Glu Glu Val Pro Pro Ser Leu Leu Glu Glu His Pro Val Val Ser Ser
        675                 680                 685
Thr Asp Ile Arg Gly Gly Gly Ala Ile Leu Ala Gln His Ile Phe Ile
    690                 695                 700
Thr Asp Asn Thr Gly Asn Leu Arg Phe Ser Gly Asn Leu Gly Gly Gly
705                 710                 715                 720
Glu Glu Ser Ser Thr Val Gly Asp Leu Ala Ile Val Gly Gly Gly Ala
                725                 730                 735
Leu Leu Ser Thr Asn Glu Val Asn Val Cys Ser Asn Gln Asn Val Val
            740                 745                 750
Phe Ser Asp Asn Val Thr Ser Asn Gly Cys Asp Ser Gly Gly Ala Ile
        755                 760                 765
Leu Ala Lys Lys Val Asp Ile Ser Ala Asn His Ser Val Glu Phe Val
    770                 775                 780
Ser Asn Gly Ser Gly Lys Phe Gly Gly Ala Val Cys Ala Leu Asn Glu
785                 790                 795                 800
Ser Val Asn Ile Thr Asp Asn Gly Ser Ala Val Ser Phe Ser Lys Asn
                805                 810                 815
Arg Thr Arg Leu Gly Gly Ala Gly Val Ala Ala Pro Gln Gly Ser Val
            820                 825                 830
Thr Ile Cys Gly Asn Gln Gly Asn Ile Ala Phe Lys Glu Asn Phe Val
        835                 840                 845
Phe Gly Ser Glu Asn Gln Arg Ser Gly Gly Gly Ala Ile Ile Ala Asn
    850                 855                 860
Ser Ser Val Asn Ile Gln Asp Asn Ala Gly Asp Ile Leu Phe Val Ser
865                 870                 875                 880
Asn Ser Thr Gly Ser Tyr Gly Gly Ala Ile Phe Val Gly Ser Leu Val
                885                 890                 895
Ala Ser Glu Gly Ser Asn Pro Arg Thr Leu Thr Ile Thr Gly Asn Ser
            900                 905                 910
Gly Asp Ile Leu Phe Ala Lys Asn Ser Thr Gln Thr Ala Ala Ser Leu
        915                 920                 925
Ser Glu Lys Asp Ser Phe Gly Gly Gly Ala Ile Tyr Thr Gln Asn Leu
    930                 935                 940
Lys Ile Val Lys Asn Ala Gly Asn Val Ser Phe Tyr Gly Asn Arg Ala
945                 950                 955                 960
```

```
Pro Ser Gly Ala Gly Val Gln Ile Ala Asp Gly Gly Thr Val Cys Leu
                965                 970                 975
Glu Ala Phe Gly Gly Asp Ile Leu Phe Glu Gly Asn Ile Asn Phe Asp
            980                 985                 990
Gly Ser Phe Asn Ala Ile His Leu Cys Gly Asn Asp Ser Lys Ile Val
        995                 1000                1005
Glu Leu Ser Ala Val Gln Asp Lys Asn Ile Ile Phe Gln Asp Ala Ile
    1010                1015                1020
Thr Tyr Glu Glu Asn Thr Ile Arg Gly Leu Pro Asp Lys Asp Val Ser
1025                1030                1035                1040
Pro Leu Ser Ala Pro Ser Leu Ile Phe Asn Ser Lys Pro Gln Asp Asp
                1045                1050                1055
Ser Ala Gln His His Glu Gly Thr Ile Arg Phe Ser Arg Gly Val Ser
            1060                1065                1070
Lys Ile Pro Gln Ile Ala Ala Ile Gln Glu Gly Thr Leu Ala Leu Ser
        1075                1080                1085
Gln Asn Ala Glu Leu Trp Leu Ala Gly Leu Lys Gln Glu Thr Gly Ser
    1090                1095                1100
Ser Ile Val Leu Ser Ala Gly Ser Ile Leu Arg Ile Phe Asp Ser Gln
1105                1110                1115                1120
Val Asp Ser Ser Ala Pro Leu Pro Thr Glu Asn Lys Glu Glu Thr Leu
                1125                1130                1135
Val Ser Ala Gly Val Gln Ile Asn Met Ser Ser Pro Thr Pro Asn Lys
            1140                1145                1150
Asp Lys Ala Val Asp Thr Pro Val Leu Ala Asp Ile Ile Ser Ile Thr
        1155                1160                1165
Val Asp Leu Ser Ser Phe Val Pro Glu Gln Asp Gly Thr Leu Pro Leu
    1170                1175                1180
Pro Pro Glu Ile Ile Ile Pro Lys Gly Thr Lys Leu His Ser Asn Ala
1185                1190                1195                1200
Ile Asp Leu Lys Ile Ile Asp Pro Thr Asn Val Gly Tyr Glu Asn His
                1205                1210                1215
Ala Leu Leu Ser Ser His Lys Asp Ile Pro Leu Ile Ser Leu Lys Thr
            1220                1225                1230
Ala Glu Gly Met Thr Gly Thr Pro Thr Ala Asp Ala Ser Leu Ser Asn
        1235                1240                1245
Ile Lys Ile Asp Val Ser Leu Pro Ser Ile Thr Pro Ala Thr Tyr Gly
    1250                1255                1260
His Thr Gly Val Trp Ser Glu Ser Lys Met Glu Asp Gly Arg Leu Val
1265                1270                1275                1280
Val Gly Trp Gln Pro Thr Gly Tyr Lys Leu Asn Pro Glu Lys Gln Gly
                1285                1290                1295
Ala Leu Val Leu Asn Asn Leu Trp Ser His Tyr Thr Asp Leu Arg Ala
            1300                1305                1310
Leu Lys Gln Glu Ile Phe Ala His His Thr Ile Ala Gln Arg Met Glu
        1315                1320                1325
Leu Asp Phe Ser Thr Asn Val Trp Gly Ser Gly Leu Gly Val Val Glu
    1330                1335                1340
Asp Cys Gln Asn Ile Gly Glu Phe Asp Gly Phe Lys His His Leu Thr
1345                1350                1355                1360
Gly Tyr Ala Leu Gly Leu Asp Thr Gln Leu Val Glu Asp Phe Leu Ile
                1365                1370                1375
Gly Gly Cys Phe Ser Gln Phe Phe Gly Lys Thr Glu Ser Gln Ser Tyr
            1380                1385                1390
Lys Ala Lys Asn Asp Val Lys Ser Tyr Met Gly Ala Ala Tyr Ala Gly
        1395                1400                1405
Ile Leu Ala Gly Pro Trp Leu Ile Lys Gly Ala Phe Val Tyr Gly Asn
```

1410 1415 1420
Ile Asn Asn Asp Leu Thr Thr Asp Tyr Gly Thr Leu Gly Ile Ser Thr
1425 1430 1435 1440
Gly Ser Trp Ile Gly Lys Gly Phe Ile Ala Gly Thr Ser Ile Asp Tyr
1445 1450 1455
Arg Tyr Ile Val Asn Pro Arg Arg Phe Ile Ser Ala Ile Val Ser Thr
1460 1465 1470
Val Val Pro Phe Val Glu Ala Glu Tyr Val Arg Ile Asp Leu Pro Glu
1475 1480 1485
Ile Ser Glu Gln Gly Lys Glu Val Arg Thr Phe Gln Lys Thr Arg Phe
1490 1495 1500
Glu Asn Val Ala Ile Pro Phe Gly Phe Ala Leu Glu His Ala Tyr Ser
1505 1510 1515 1520
Arg Gly Ser Arg Ala Glu Val Asn Ser Val Gln Leu Ala Tyr Val Phe
1525 1530 1535
Asp Val Tyr Arg Lys Gly Pro Val Ser Leu Ile Thr Leu Lys Asp Ala
1540 1545 1550
Ala Tyr Ser Trp Lys Ser Tyr Gly Val Asp Ile Pro Cys Lys Ala Trp
1555 1560 1565
Lys Ala Arg Leu Ser Asn Asn Thr Glu Trp Asn Ser Tyr Leu Ser Thr
1570 1575 1580
Tyr Leu Ala Phe Asn Tyr Glu Trp Arg Glu Asp Leu Ile Ala Tyr Asp
1585 1590 1595 1600
Phe Asn Gly Gly Ile Arg Ile Ile Phe
1605

<210> 76
<211> 196
<212> PRT
<213> Chlamydia pneumoniae

<400> 76
Met Thr Leu Ser Leu Val Gly Lys Glu Ala Pro Asp Phe Val Ala Gln
5 10 15
Ala Val Val Asn Gly Glu Thr Cys Thr Val Ser Leu Lys Asp Tyr Leu
20 25 30
Gly Lys Tyr Val Val Leu Phe Phe Tyr Pro Lys Asp Phe Thr Tyr Val
35 40 45
Cys Pro Thr Glu Leu His Ala Phe Gln Asp Ala Leu Gly Glu Phe His
50 55 60
Thr Arg Gly Ala Glu Val Ile Gly Cys Ser Val Asp Asp Ile Ala Thr
65 70 75 80
His Gln Gln Trp Leu Ala Thr Lys Lys Lys Gln Gly Gly Ile Glu Gly
85 90 95
Ile Thr Tyr Pro Leu Leu Ser Asp Glu Asp Lys Val Ile Ser Arg Ser
100 105 110
Tyr His Val Leu Lys Pro Glu Glu Glu Leu Ser Phe Arg Gly Val Phe
115 120 125
Leu Ile Asp Lys Gly Gly Ile Ile Arg His Leu Val Val Asn Asp Leu
130 135 140
Pro Leu Gly Arg Ser Ile Glu Glu Glu Leu Arg Thr Leu Asp Ala Leu
145 150 155 160
Ile Phe Phe Glu Thr Asn Gly Leu Val Cys Pro Ala Asn Trp His Glu
165 170 175
Gly Glu Arg Ala Met Ala Pro Asn Glu Glu Gly Leu Gln Asn Tyr Phe
180 185 190

Gly Thr Ile Asp
195

<210> 77
<211> 619
<212> PRT
<213> Chlamydia pneumoniae

<400> 77
Met Lys Lys Gly Lys Leu Gly Ala Ile Val Phe Gly Leu Leu Phe Thr
1 5 10 15
Ser Ser Val Ala Gly Phe Ser Lys Asp Leu Thr Lys Asp Asn Ala Tyr
20 25 30
Gln Asp Leu Asn Val Ile Glu His Leu Ile Ser Leu Lys Tyr Ala Pro
35 40 45
Leu Pro Trp Lys Glu Leu Leu Phe Gly Trp Asp Leu Ser Gln Gln Thr
50 55 60
Gln Gln Ala Arg Leu Gln Leu Val Leu Glu Glu Lys Pro Thr Thr Asn
65 70 75 80
Tyr Cys Gln Lys Val Leu Ser Asn Tyr Val Arg Ser Leu Asn Asp Tyr
85 90 95
His Ala Gly Ile Thr Phe Tyr Arg Thr Glu Ser Ala Tyr Ile Pro Tyr
100 105 110
Val Leu Lys Leu Ser Glu Asp Gly His Val Phe Val Val Asp Val Gln
115 120 125
Thr Ser Gln Gly Asp Ile Tyr Leu Gly Asp Glu Ile Leu Glu Val Asp
130 135 140
Gly Met Gly Ile Arg Glu Ala Ile Glu Ser Leu Arg Phe Gly Arg Gly
145 150 155 160
Ser Ala Thr Asp Tyr Ser Ala Ala Val Arg Ser Leu Thr Ser Arg Ser
165 170 175
Ala Ala Phe Gly Asp Ala Val Pro Ser Gly Ile Ala Met Leu Lys Leu
180 185 190
Arg Arg Pro Ser Gly Leu Ile Arg Ser Thr Pro Val Arg Trp Arg Tyr
195 200 205
Thr Pro Glu His Ile Gly Asp Phe Ser Leu Val Ala Pro Leu Ile Pro
210 215 220
Glu His Lys Pro Gln Leu Pro Thr Gln Ser Cys Val Leu Phe Arg Ser
225 230 235 240
Gly Val Asn Ser Gln Ser Ser Ser Ser Ser Leu Phe Ser Ser Tyr Met
245 250 255
Val Pro Tyr Phe Trp Glu Glu Leu Arg Val Gln Asn Lys Gln Arg Phe
260 265 270
Asp Ser Asn His His Ile Gly Ser Arg Asn Gly Phe Leu Pro Thr Phe
275 280 285
Gly Pro Ile Leu Trp Glu Gln Asp Lys Gly Pro Tyr Arg Ser Tyr Ile
290 295 300
Phe Lys Ala Lys Asp Ser Gln Gly Asn Pro His Arg Ile Gly Phe Leu
305 310 315 320
Arg Ile Ser Ser Tyr Val Trp Thr Asp Leu Glu Gly Leu Glu Glu Asp
325 330 335
His Lys Asp Ser Pro Trp Glu Leu Phe Gly Glu Ile Ile Asp His Leu
340 345 350
Glu Lys Glu Thr Asp Ala Leu Ile Ile Asp Gln Thr His Asn Pro Gly
355 360 365
Gly Ser Val Phe Tyr Leu Tyr Ser Leu Leu Ser Met Leu Thr Asp His

```
    370                 375                 380
Pro Leu Asp Thr Pro Lys His Arg Met Ile Phe Thr Gln Asp Glu Val
385                 390                 395                 400
Ser Ser Ala Leu His Trp Gln Asp Leu Leu Glu Asp Val Phe Thr Asp
                405                 410                 415
Glu Gln Ala Val Ala Val Leu Gly Glu Thr Met Glu Gly Tyr Cys Met
            420                 425                 430
Asp Met His Ala Val Ala Ser Leu Gln Asn Phe Ser Gln Ser Val Leu
        435                 440                 445
Ser Ser Trp Val Ser Gly Asp Ile Asn Leu Ser Lys Pro Met Pro Leu
    450                 455                 460
Leu Gly Phe Ala Gln Val Arg Pro His Pro Lys His Gln Tyr Thr Lys
465                 470                 475                 480
Pro Leu Phe Met Leu Ile Asp Glu Asp Asp Phe Ser Cys Gly Asp Leu
                485                 490                 495
Ala Pro Ala Ile Leu Lys Asp Asn Gly Arg Ala Thr Leu Ile Gly Lys
            500                 505                 510
Pro Thr Ala Gly Ala Gly Gly Phe Val Phe Gln Val Thr Phe Pro Asn
        515                 520                 525
Arg Ser Gly Ile Lys Gly Leu Ser Leu Thr Gly Ser Leu Ala Val Arg
    530                 535                 540
Lys Asp Gly Glu Phe Ile Glu Asn Leu Gly Val Ala Pro His Ile Asp
545                 550                 555                 560
Leu Gly Phe Thr Ser Arg Asp Leu Gln Thr Ser Arg Phe Thr Asp Tyr
                565                 570                 575
Val Glu Ala Val Lys Thr Ile Val Leu Thr Ser Leu Ser Glu Asn Ala
            580                 585                 590
Lys Lys Ser Glu Glu Gln Thr Ser Pro Gln Glu Thr Pro Glu Val Ile
        595                 600                 605
Arg Val Ser Tyr Pro Thr Thr Thr Ser Ala Ser
    610                 615
```

<210> 78
<211> 651
<212> PRT
<213> Chlamydia pneumoniae

<400> 78

```
Met Val Asn Pro Ile Gly Pro Gly Pro Ile Asp Glu Thr Glu Arg Thr
                5                  10                  15
Pro Pro Ala Asp Leu Ser Ala Gln Gly Leu Glu Ala Ser Ala Ala Asn
            20                  25                  30
Lys Ser Ala Glu Ala Gln Arg Ile Ala Gly Ala Glu Ala Lys Pro Lys
        35                  40                  45
Glu Ser Lys Thr Asp Ser Val Glu Arg Trp Ser Ile Leu Arg Ser Ala
    50                  55                  60
Val Asn Ala Leu Met Ser Leu Ala Asp Lys Leu Gly Ile Ala Ser Ser
65                  70                  75                  80
Asn Ser Ser Ser Ser Thr Ser Arg Ser Ala Asp Val Asp Ser Thr Thr
                85                  90                  95
Ala Thr Ala Pro Thr Pro Pro Pro Pro Thr Phe Asp Asp Tyr Lys Thr
            100                 105                 110
Gln Ala Gln Thr Ala Tyr Asp Thr Ile Phe Thr Ser Thr Ser Leu Ala
        115                 120                 125
Asp Ile Gln Ala Ala Leu Val Ser Leu Gln Asp Ala Val Thr Asn Ile
    130                 135                 140
```

```
Lys Asp Thr Ala Ala Thr Asp Glu Glu Thr Ala Ile Ala Ala Glu Trp
145                 150                 155                 160
Glu Thr Lys Asn Ala Asp Ala Val Lys Val Gly Ala Gln Ile Thr Glu
                165                 170                 175
Leu Ala Lys Tyr Ala Ser Asp Asn Gln Ala Ile Leu Asp Ser Leu Gly
            180                 185                 190
Lys Leu Thr Ser Phe Asp Leu Leu Gln Ala Ala Leu Leu Gln Ser Val
        195                 200                 205
Ala Asn Asn Asn Lys Ala Ala Glu Leu Leu Lys Glu Met Gln Asp Asn
    210                 215                 220
Pro Val Val Pro Gly Lys Thr Pro Ala Ile Ala Gln Ser Leu Val Asp
225                 230                 235                 240
Gln Thr Asp Ala Thr Ala Thr Gln Ile Glu Lys Asp Gly Asn Ala Ile
                245                 250                 255
Arg Asp Ala Tyr Phe Ala Gly Gln Asn Ala Ser Gly Ala Val Glu Asn
            260                 265                 270
Ala Lys Ser Asn Asn Ser Ile Ser Asn Ile Asp Ser Ala Lys Ala Ala
        275                 280                 285
Ile Ala Thr Ala Lys Thr Gln Ile Ala Glu Ala Gln Lys Lys Phe Pro
    290                 295                 300
Asp Ser Pro Ile Leu Gln Glu Ala Glu Gln Met Val Ile Gln Ala Glu
305                 310                 315                 320
Lys Asp Leu Lys Asn Ile Lys Pro Ala Asp Gly Ser Asp Val Pro Asn
                325                 330                 335
Pro Gly Thr Thr Val Gly Gly Ser Lys Gln Gln Gly Ser Ser Ile Gly
            340                 345                 350
Ser Ile Arg Val Ser Met Leu Leu Asp Asp Ala Glu Asn Glu Thr Ala
        355                 360                 365
Ser Ile Leu Met Ser Gly Phe Arg Gln Met Ile His Met Phe Asn Thr
    370                 375                 380
Glu Asn Pro Asp Ser Gln Ala Ala Gln Gln Glu Leu Ala Ala Gln Ala
385                 390                 395                 400
Arg Ala Ala Lys Ala Ala Gly Asp Asp Ser Ala Ala Ala Ala Leu Ala
                405                 410                 415
Asp Ala Gln Lys Ala Leu Glu Ala Ala Leu Gly Lys Ala Gly Gln Gln
            420                 425                 430
Gln Gly Ile Leu Asn Ala Leu Gly Gln Ile Ala Ser Ala Ala Val Val
        435                 440                 445
Ser Ala Gly Val Pro Pro Ala Ala Ala Ser Ser Ile Gly Ser Ser Val
    450                 455                 460
Lys Gln Leu Tyr Lys Thr Ser Lys Ser Thr Gly Ser Asp Tyr Lys Thr
465                 470                 475                 480
Gln Ile Ser Ala Gly Tyr Asp Ala Tyr Lys Ser Ile Asn Asp Ala Tyr
                485                 490                 495
Gly Arg Ala Arg Asn Asp Ala Thr Arg Asp Val Ile Asn Asn Val Ser
            500                 505                 510
Thr Pro Ala Leu Thr Arg Ser Val Pro Arg Ala Arg Thr Glu Ala Arg
        515                 520                 525
Gly Pro Glu Lys Thr Asp Gln Ala Leu Ala Arg Val Ile Ser Gly Asn
    530                 535                 540
Ser Arg Thr Leu Gly Asp Val Tyr Ser Gln Val Ser Ala Leu Gln Ser
545                 550                 555                 560
Val Met Gln Ile Ile Gln Ser Asn Pro Gln Ala Asn Asn Glu Glu Ile
                565                 570                 575
Arg Gln Lys Leu Thr Ser Ala Val Thr Lys Pro Pro Gln Phe Gly Tyr
            580                 585                 590
Pro Tyr Val Gln Leu Ser Asn Asp Ser Thr Gln Lys Phe Ile Ala Lys
```

```
        595                 600                 605
Leu Glu Ser Leu Phe Ala Glu Gly Ser Arg Thr Ala Ala Glu Ile Lys
    610                 615                 620
Ala Leu Ser Phe Glu Thr Asn Ser Leu Phe Ile Gln Gln Val Leu Val
625                 630                 635                 640
Asn Ile Gly Ser Leu Tyr Ser Gly Tyr Leu Gln
                645                 650
```

<210> 79
<211> 87
<212> PRT
<213> Chlamydia pneumoniae

<400> 79
```
Met Ser Gln Lys Asn Lys Asn Ser Ala Phe Met His Pro Val Asn Ile
                  5                  10                  15
Ser Thr Asp Leu Ala Val Ile Val Gly Lys Gly Pro Met Pro Arg Thr
             20                  25                  30
Glu Ile Val Lys Lys Val Trp Glu Tyr Ile Lys Lys His Asn Cys Gln
         35                  40                  45
Asp Gln Lys Asn Lys Arg Asn Ile Leu Pro Asp Ala Asn Leu Ala Lys
     50                  55                  60
Val Phe Gly Ser Ser Asp Pro Ile Asp Met Phe Gln Met Thr Lys Ala
 65                  70                  75                  80
Leu Ser Lys His Ile Val Lys
                 85
```

<210> 80
<211> 3048
<212> DNA
<213> Chlamydia trachomatis serovar D

<400> 80
```
atgccttttt ctttgagatc tacatcattt tgtttttag cttgtttgtg ttcctattcg 60
tatggattcg cgagctctcc tcaagtgtta acacctaatg taaccactcc ttttaagggg 120
gacgatgttt acttgaatgg agactgcgct tttgtcaatg tctatgcagg ggcagagaac 180
ggctcaatta tctcagctaa tggcgacaat ttaacgatta ccggacaaaa ccatacatta 240
tcatttacag attctcaagg gccagttctt caaaattatg ccttcatttc agcaggagag 300
acacttactc tgaaagattt ttcgagtttg atgttctcga aaaatgtttc ttgcggagaa 360
aagggaatga tctcagggaa aaccgtgagt atttccggag caggcgaagt gatttttgg 420
gataactctg tggggtattc tcctttgtct attgtgccag catcgactcc aactcctcca 480
gcaccagcac cagctcctgc tgcttcaagc tctttatctc caacagttag tgatgctcgg 540
aaagggtcta ttttttctgt agagactagt ttggagatct caggcgtcaa aaaaggggtc 600
atgttcgata ataatgccgg gaattttgga acagtttttc gaggtaatag taataataat 660
gctggtagtg ggggtagtgg gtctgctaca acaccaagtt ttacagttaa aaactgtaaa 720
gggaaagttt ctttcacaga taacgtagcc tcctgtggag gcggagtagt ctacaaagga 780
actgtgcttt tcaaagacaa tgaaggaggc atattcttcc gagggaacac agcatacgat 840
gatttaggga ttcttgctgc tactagtcgg gatcagaata cggagacagg aggcggtgga 900
ggagttattt gctctccaga tgattctgta aagtttgaag gcaataaagg ttctattgtt 960
tttgattaca actttgcaaa aggcagaggc ggaagcatcc taacgaaaga attctctctt 1020
gtagcagatg attcggttgt ctttagtaac aatacagcag aaaaaggcgg tggagctatt 1080
tatgctccta ctatcgatat aagcacgaat ggaggatcga ttctatttga aagaaaccga 1140
gctgcagaag gaggcgccat ctgcgtgagt gaagcaagct ctggttcaac tggaaatctt 1200
actttaagcg cttctgatgg ggatattgtt ttttctggga atatgacgag tgatcgtcct 1260
ggagagcgca gcgcagcaag aatcttaagt gatggaacga ctgtttcttt aaatgcttcc 1320
ggactatcga agctgatctt ttatgatcct gtagtacaaa ataattcagc agcgggtgca 1380
```

tcgacaccat caccatcttc ttcttctatg cctggtgctg tcacgattaa tcagtccggt 1440
aatggatctg tgatttttac cgccgagtca ttgactcctt cagaaaaact tcaagttctt 1500
aactctactt ctaacttccc aggagctctg actgtgtcag gaggggagtt ggttgtgacg 1560
gaaggagcta ccttaactac tgggaccatt acagccacct ctggacgagt gactttagga 1620
tccggagctt cgttgtctgc cgttgcaggt gctgcaaata ataattatac ttgtacagta 1680
tctaagttgg ggattgattt agaatccttt ttaactccta actataagac ggccatactg 1740
ggtgcggatg gaacagttac tgttaacagc ggctctactt tagacctagt gatggagagt 1800
gaggcagagg tatatgataa tccgcttttt gtgggatcgc tgacaattcc ttttgttact 1860
ctatcttcta gtagtgctag taacggagtt acaaaaaatt ctgtcactat taatgatgca 1920
gacgctgcgc actatgggta tcaaggctct tggtctgcag attggacgaa accgcctctg 1980
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<213> Chlamydia trachomatis serovar D

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<212> DNA

<213> Chlamydia trachomatis serovar D

<400> 82

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<211> 4593
<212> DNA
<213> Chlamydia trachomatis serovar D

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<213> Chlamydia trachomatis serovar D

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<212> DNA
<213> Chlamydia trachomatis serovar D

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<212> DNA
<213> Chlamydia trachomatis serovar D

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<212> DNA
<213> Chlamydia trachomatis serovar D

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<210> 88
<211> 1182
<212> DNA
<213> Chlamydia trachomatis serovar D

<400> 88
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ttggctgatt ttcgtgatta tagctctatt gacaacactc ctgaagaaaa agctcgcggt 180
attacaatta acgcttccca cgttgagtac gaaacagcta atcgtcacta cgctcacgtg 240
gactgccctg gtcacgctga ctatgttaaa aacatgatca ccggtgcagc tcaaatggac 300
ggggctattc tagtagtttc tgcaacagac ggagctatgc ctcaaactaa agagcatatt 360
cttttggcaa gacaagttgg ggttccttac atcgttgttt ttctcaataa aattgacatg 420
atttccgaag aagacgctga attggtcgac ttagttgaga tggagttggt tgagcttctt 480
gaagagaaag gatacaaagg gtgtccaatc atcagaggtt ctgctctgaa agctttggaa 540
ggggatgctg catacataga gaaagttcga gagctaatgc aagccgtcga tgataacatc 600
cctactccag aaagagaaat tgacaagcct ttcttaatgc ctattgagga cgtattctct 660
atctccggac gaggaactgt agtaactgga cgtattgagc gtggaattgt taaagtttcc 720
gataaagttc agttggtcgg tcttagagat actaaagaaa cgattgttac tggggttgaa 780
atgttcagaa aagaactccc agaaggtcgt gcaggagaga acgttggatt gctcctcaga 840
ggtattggta agaacgatgt ggaaagagga atggttgttt gcttgccaaa cagtgttaaa 900
cctcatacac agttcaagtg tgctgtttac gttttgcaaa aagaagaagg tggacgacat 960
aagcctttct tcacaggata tagacctcaa ttcttcttcc gtacaacaga cgtcacaggt 1020
gtggtaactc tgcctgaggg aattgagatg gtcatgcctg gggataacgt tgagtttgaa 1080
gtgcaattga ttagccctgt ggctttagaa gaaggtatga gatttgcgat tcgtgaaggt 1140
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<210> 89
<211> 246
<212> DNA
<213> Chlamydia trachomatis serovar D

<400> 89
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gcttttgcgg gtaactttat cgaagaaatt aagaagattg agtgggtaaa taagcgagat 120
cttaaaagat acgtcaagat tgttttgatg aatatttttg gctttggatt ttccatctat 180
tgtgtggatt tagctcttcg aaagtccctt tcattgttcg gtaaagtaac aagcttttc 240
tttggt 246

<210> 90
<211> 1137
<212> DNA
<213> Chlamydia trachomatis serovar D

<400> 90
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cagatgagcc aaactcttcc tactattata gaagcacaag cggaagaggc attgcaggct 180
gacaggggag ttgctggaca ggctcttaaa aaacttcgta aaaaaagatg tgcttctaga 240
aaatctgcat gtaaggcttc ttttaagaaa aaggatttct tttcttgtat tacaaatgga 300
ttgttctctg gaaatcatga gcagcgttta actgcgaaaa aagagaacaa ggctcgaggt 360
aaagagcctc gagtagtggt tcaaacgact aaaaaacgac aaataactca gtctgagaaa 420
gaatttttcg attggctatg taatagtaaa agagaaagaa agcttctcaa gaaaaagcct 480
gtaaatactt ctcttgctaa gagtgaagaa ttgagtccta aagaagcagc aatagctgct 540
gctcgagctt ctctttctcc agaagaaaaa cgtcaattga ttcgtgagtg gttagcagaa 600
gaaaagactg ctcgtaaatc tgggcgtgcg gcttgtgcgg taagtgagaa tcttaaaaga 660
gacggaagta ttacttctac attgcgctat gatgcggaga aagctttgac tacacgtgta 720

aaacgcaatg aaaattctgt aaatgctaga gcaagacaac gagccgctct tcaaaaagcc 780
aagaaagcaa agacggagaa acctgaggct gatgagaaag ctgcagaagc tgttgccgca 840
gctccaacca aacaggcgca taaggagcca gagaattact tcgcagctac agcttctaca 900
aataatacta atgttatgtc ctatctaaat gctcatcaat accgttgtga ttcttcggag 960
acggactggc cttgctcttc ttgtgttacg aaacgccgag ctaacttcgg tatttctgtg 1020
tgtactatgg tggttaccgt cattgctatg atcgtaggag ctgttatcat ttctaatgct 1080
acagactcta ccgttgcggg ctcctcggga acaggaggag gaggctcaac gcaacca 1137

<210> 91
<211> 1689
<212> DNA
<213> Chlamydia trachomatis serovar D

<400> 91
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caccattcgt tctccgataa gcatcctcaa attgctaaag ctatgcggat tacggggata 120
gccctcgcag ctctatctct gctcgctgta gtcgcctgcg ttattgccgt ctctgcggga 180
ggagctgcca ttcctcttgc tgtcattagt ggaattgctg taatgtctgg cctcttatcc 240
gctgccacca ttatctgttc tgcaaaaaag gctttggctc aacgaaaaca aaaacaacta 300
gaagagtcgc ttccgttaga taatgcgacc gagcatgtga gttacctgac ctcagacacc 360
tcttatttta atcaatggga atccttaggt gctctaaata agcagttgtc tcagattgac 420
ttaactattc aagctcccga aaaaaaacta ttaaaagaag ttcttggttc cagatacgat 480
tccattaatc actccatcga agagatctcc gatcgcttta cgaaaatgct ctctcttctt 540
cgattaagag aacattttta tcgaggagaa gagcgttatg ccccctattt aagccctcct 600
ctacttaaca agaatcgttt gctgacccaa atcacatcca atatgattag gatgctacca 660
aaatccggtg gtgtttttc cctcaaagcc aatacactaa gtcatgccag ccgcacacta 720
tatacagtat taaaagtcgc tttatcctta ggagttctcg ctggagtcgc tgctcttatc 780
atctttcttc cccctagcct gccttttatc gctgttatag gagtatcttc cttagcattg 840
gggatggcat ctttccttat gattcggggc attaagtatt tgctcgaaca ttctcctctg 900
aatagaaagc aactagctaa agatattcaa aaaaccattg gcccagatgt cttggcctct 960
atggttcatt accagcatca attactatca catctacatg aaactctatt agatgaagcc 1020
atcacagcta gatggagcga gcccttcttt attgaacacg ctaatcttaa ggcaaaaatt 1080
gaagatttga caaaacaata tgatatattg aacgcagcct ttaataaatc tttacaacaa 1140
gatgaggcgc tccgttctca attagagaaa cgagcttact tattcccaat tcctaataac 1200
gacgaaaatg ctaaaactaa agaatcgcag cttctagact cagaaaatga ttcaaattct 1260
gaatttcagg agattataaa taaaggacta gaagctgcca ataaacgacg agctgacgct 1320
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acaaagaact tggcattaga agatttgtgg agagtgcatg aagcttgcaa tgaagagcaa 1440
caagctctcc tcttagaaga ttatatgagt tataaaacct cagaatgtca agctgcactc 1500
caaaaagtga gtcaagaact gaaggcggca caaaaatcat tcgcagtcct agaaaagcat 1560
gctctagaca gatcttatga atccagtgta gccacgatgg atttagctag agcgaatcaa 1620
gaaacacacc ggcttctgaa catcctctct gaattacaac aactagcaca atacctgtta 1680
gataatcac 1689

<210> 92
<211> 1074
<212> DNA
<213> Chlamydia trachomatis serovar D

<400> 92
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caggacgaga atggtgagtg tactgcaacc aaagattttc gcgatgtaga gcggatcgca 180
gaacaattgt ccattccata ttacacagtt tccttttcta aggaatataa agagcgagtg 240
ttttctagat ttctaagaga atatgcgaac ggctacactc ccaatcctga tgtgttatgc 300
aatcgagaaa tcaaatttga tttattacag aagaaggtac gtgagctaaa aggtgatttt 360
ttagccacgg gacattattg tcgaggaggg gctgatggaa ctggtttgtc cagaggaata 420

gaccccaata aagaccaaag ttatttctta tgtggcactc ctaaggatgc tttatccaat 480
gtacttttcc ccctgggagg tatgtataaa acggaggtac gtcgaattgc tcaagaagct 540
ggtttagcta ccgccacaaa aaaagatagc acagggattt gcttcattgg taaacggcct 600
tttaagagtt tccttgagca gtttgtagca gactctcctg gagacattat tgattttgat 660
acacaacagg tagtcggccg acatgaagga gcccattatt atacgattgg acagcgtcga 720
gggttaaaca taggaggaat ggaaaagcct tgttatgttc ttagcaagaa tatggaaaag 780
aatattgttt acattgtaag gggtgaagat catcctttac tttatcgaca agagctttta 840
gctaaggaac ttaattggtt tgttcccttg caggagccta tgatctgtag tgctaaagtt 900
cggtacagat cccctgacga gaaatgttct gtatatcctt tggaagatgg aacggtaaaa 960
gtgatttttcg atgtccctgt gaaagctgtc acccctggac agactgtagc tttctaccag 1020
ggggacattt gtttaggagg aggagtgatt gaagtgccta tgattcatca gctg 1074

<210> 93
<211> 801
<212> DNA
<213> Chlamydia trachomatis serovar D

<400> 93
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tgggaagtca ttgcccaaga ttataataaa gccgttgatc gcgatggaca tttctatcat 120
aaggaagtga ttctccctaa tctcctttct aagctacata tttcccgctc atcgtctctg 180
gttgatgtag gatgtggtca agggattttg gagaagcatt tacccaaaca tctcccttat 240
ctaggaatcg atctttcccc tagtctgctg cgttttgcaa agaaaagcgc ttcctcaaaa 300
tcacgtcgct ttcttcatca cgatatgacg caaccggtac cagcagatca tcatgagcag 360
ttttcccatg ctacagcaat cctttctctt cagaatatgg aatctccaga acaagctatc 420
gcacacacag cgaatctttt ggctcctcaa ggtaggttgt ttattgttct caaccatcca 480
tgctttcgca tccctaggct ttcttcatgg ctttatgatg agcctaaaaa actcttatct 540
agaaaaatag accgctatct ctctcctgtg gcggttccta tcgttgtgca tcctggagaa 600
aaacattctg agacgacata ttctttccat ttccccttaa gctattgggt acaagcttta 660
tctaatcaca atcttctgat tgatagtatg gaagaatgga tctcccctaa aaaatcctca 720
gggaagaggg ctcgagcaga aaatctttgt cgcaaggagt ttccgctttt cttgtttatc 780
tcagcattaa aaatatcaaa a 801

<210> 94
<211> 2601
<212> DNA
<213> Chlamydia trachomatis serovar D

<400> 94
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ggttccctat tttgtttggt cattaaggat gtgcacggta atcttggttt gcttacttct 180
gctgtggacg acgccttacg cagagaacca actgtagtcg agggaaccgc tgttgctagt 240
ccttctccaa gtttacagca gttgttgctc aatgcgcatc aagaagctag aagtatgggt 300
gacgaatatc tatcagggga tcatttgtta ctagcttttt ggcgatcgac taaagagcct 360
tttgcttctt ggagaaaaac tgtaaaaact acctctgaag cgttgaaaga attaattact 420
aaattaagac aaggaagtcg tatggactca cctagtgctg aagaaaatct gaaaggatta 480
gagaaatact gcaaaaattt gactgtactt gcaagagaag gcaagcttga tcctgtgatt 540
ggtcgagatg aagagattag acgtacgata caggttcttt ctagacgaac aaagaataat 600
cctatgttga taggggagcc cggagttggg aaaacagcaa tcgctgaagg acttgctctt 660
cgcatagtgc aaggggatgt tccagagagt ttaaaggaaa agcatctgta tgtactggat 720
atgggagctt tgattgcagg tgccaagtat cgaggagagt ttgaagagcg gttaaaaagt 780
gtattgaagg gtgtagaagc ttctgaaggc gagtgtatcc tattcattga tgaagtgcat 840
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gctttagcac gaggcacttt gcattgtatt ggcgctacga ctttgaatga ataccaaaaa 960
tatatagaga aagacgcggc tttggaacgg cgtttccagc ctatttttgt aacagaacct 1020
tctttggaag atgctgtatt cattctccgg gggttaaggg aaaaatatga aatttttcat 1080

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cgtatgcaaa taggaagttt acctctgcct attgatgaaa aggaaagaga attatcagct 1260
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ttaaaatttg ccgaagagga agctgagcgt actgccgatt acaatcgggt ggcagaacta 1500
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tttctatttc ttggacctac aggggtaggg aaaactgagc ttgctaaagc attagcagag 1860
cttttattta ataaggaaga agcgatgatt cggtttgaca tgaccgaata tatggaaaaa 1920
cattccgttt ccaaattgat aggatctcct ccagggtatg taggatatga agaaggaggg 1980
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<210> 95
<211> 1016
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 95

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Cys Ser Tyr Ser Tyr Gly Phe Ala Ser Ser Pro Gln Val Leu Thr Pro
            20                  25                  30
Asn Val Thr Thr Pro Phe Lys Gly Asp Asp Val Tyr Leu Asn Gly Asp
        35                  40                  45
Cys Ala Phe Val Asn Val Tyr Ala Gly Ala Glu Asn Gly Ser Ile Ile
    50                  55                  60
Ser Ala Asn Gly Asp Asn Leu Thr Ile Thr Gly Gln Asn His Thr Leu
65                  70                  75                  80
Ser Phe Thr Asp Ser Gln Gly Pro Val Leu Gln Asn Tyr Ala Phe Ile
                85                  90                  95
Ser Ala Gly Glu Thr Leu Thr Leu Lys Asp Phe Ser Ser Leu Met Phe
            100                 105                 110
Ser Lys Asn Val Ser Cys Gly Glu Lys Gly Met Ile Ser Gly Lys Thr
        115                 120                 125
Val Ser Ile Ser Gly Ala Gly Glu Val Ile Phe Trp Asp Asn Ser Val
    130                 135                 140
Gly Tyr Ser Pro Leu Ser Ile Val Pro Ala Ser Thr Pro Thr Pro Pro
145                 150                 155                 160
Ala Pro Ala Pro Ala Pro Ala Ala Ser Ser Ser Leu Ser Pro Thr Val
                165                 170                 175
Ser Asp Ala Arg Lys Gly Ser Ile Phe Ser Val Glu Thr Ser Leu Glu
            180                 185                 190
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Ile Ser Gly Val Lys Lys Gly Val Met Phe Asp Asn Asn Ala Gly Asn
        195                 200                 205
Phe Gly Thr Val Phe Arg Gly Asn Ser Asn Asn Asn Ala Gly Ser Gly
    210                 215                 220
Gly Ser Gly Ser Ala Thr Thr Pro Ser Phe Thr Val Lys Asn Cys Lys
225                 230                 235                 240
Gly Lys Val Ser Phe Thr Asp Asn Val Ala Ser Cys Gly Gly Gly Val
                245                 250                 255
Val Tyr Lys Gly Thr Val Leu Phe Lys Asp Asn Glu Gly Gly Ile Phe
            260                 265                 270
Phe Arg Gly Asn Thr Ala Tyr Asp Asp Leu Gly Ile Leu Ala Ala Thr
        275                 280                 285
Ser Arg Asp Gln Asn Thr Glu Thr Gly Gly Gly Gly Gly Val Ile Cys
    290                 295                 300
Ser Pro Asp Asp Ser Val Lys Phe Glu Gly Asn Lys Gly Ser Ile Val
305                 310                 315                 320
Phe Asp Tyr Asn Phe Ala Lys Gly Arg Gly Gly Ser Ile Leu Thr Lys
                325                 330                 335
Glu Phe Ser Leu Val Ala Asp Asp Ser Val Val Phe Ser Asn Asn Thr
            340                 345                 350
Ala Glu Lys Gly Gly Gly Ala Ile Tyr Ala Pro Thr Ile Asp Ile Ser
        355                 360                 365
Thr Asn Gly Gly Ser Ile Leu Phe Glu Arg Asn Arg Ala Ala Glu Gly
    370                 375                 380
Gly Ala Ile Cys Val Ser Glu Ala Ser Ser Gly Ser Thr Gly Asn Leu
385                 390                 395                 400
Thr Leu Ser Ala Ser Asp Gly Asp Ile Val Phe Ser Gly Asn Met Thr
                405                 410                 415
Ser Asp Arg Pro Gly Glu Arg Ser Ala Ala Arg Ile Leu Ser Asp Gly
            420                 425                 430
Thr Thr Val Ser Leu Asn Ala Ser Gly Leu Ser Lys Leu Ile Phe Tyr
        435                 440                 445
Asp Pro Val Val Gln Asn Asn Ser Ala Ala Gly Ala Ser Thr Pro Ser
    450                 455                 460
Pro Ser Ser Ser Ser Met Pro Gly Ala Val Thr Ile Asn Gln Ser Gly
465                 470                 475                 480
Asn Gly Ser Val Ile Phe Thr Ala Glu Ser Leu Thr Pro Ser Glu Lys
                485                 490                 495
Leu Gln Val Leu Asn Ser Thr Ser Asn Phe Pro Gly Ala Leu Thr Val
            500                 505                 510
Ser Gly Gly Glu Leu Val Val Thr Glu Gly Ala Thr Leu Thr Thr Gly
        515                 520                 525
Thr Ile Thr Ala Thr Ser Gly Arg Val Thr Leu Gly Ser Gly Ala Ser
    530                 535                 540
Leu Ser Ala Val Ala Gly Ala Ala Asn Asn Asn Tyr Thr Cys Thr Val
545                 550                 555                 560
Ser Lys Leu Gly Ile Asp Leu Glu Ser Phe Leu Thr Pro Asn Tyr Lys
                565                 570                 575
Thr Ala Ile Leu Gly Ala Asp Gly Thr Val Thr Val Asn Ser Gly Ser
            580                 585                 590
Thr Leu Asp Leu Val Met Glu Ser Glu Ala Glu Val Tyr Asp Asn Pro
        595                 600                 605
Leu Phe Val Gly Ser Leu Thr Ile Pro Phe Val Thr Leu Ser Ser Ser
    610                 615                 620
Ser Ala Ser Asn Gly Val Thr Lys Asn Ser Val Thr Ile Asn Asp Ala
625                 630                 635                 640
Asp Ala Ala His Tyr Gly Tyr Gln Gly Ser Trp Ser Ala Asp Trp Thr
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                645                 650                 655
Lys Pro Pro Leu Ala Pro Asp Ala Lys Gly Met Val Pro Pro Asn Thr
            660                 665                 670
Asn Asn Thr Leu Tyr Leu Thr Trp Arg Pro Ala Ser Asn Tyr Gly Glu
        675                 680                 685
Tyr Arg Leu Asp Pro Gln Arg Lys Gly Glu Leu Val Pro Asn Ser Leu
    690                 695                 700
Trp Val Ala Gly Ser Ala Leu Arg Thr Phe Thr Asn Gly Leu Lys Glu
705                 710                 715                 720
His Tyr Val Ser Arg Asp Val Gly Phe Val Ala Ser Leu His Ala Leu
                725                 730                 735
Gly Asp Tyr Ile Leu Asn Tyr Thr Gln Asp Asp Arg Asp Gly Phe Leu
            740                 745                 750
Ala Arg Tyr Gly Gly Phe Gln Ala Thr Ala Ala Ser His Tyr Glu Asn
        755                 760                 765
Gly Ser Ile Phe Gly Val Ala Phe Gly Gln Leu Tyr Gly Gln Thr Lys
    770                 775                 780
Ser Arg Met Tyr Tyr Ser Lys Asp Ala Gly Asn Met Thr Met Leu Ser
785                 790                 795                 800
Cys Phe Gly Arg Ser Tyr Val Asp Ile Lys Gly Thr Glu Thr Val Met
                805                 810                 815
Tyr Trp Glu Thr Ala Tyr Gly Tyr Ser Val His Arg Met His Thr Gln
            820                 825                 830
Tyr Phe Asn Asp Lys Thr Gln Lys Phe Asp His Ser Lys Cys His Trp
        835                 840                 845
His Asn Asn Asn Tyr Tyr Ala Phe Val Gly Ala Glu His Asn Phe Leu
    850                 855                 860
Glu Tyr Cys Ile Pro Thr Arg Gln Phe Ala Arg Asp Tyr Glu Leu Thr
865                 870                 875                 880
Gly Phe Met Arg Phe Glu Met Ala Gly Gly Trp Ser Ser Ser Thr Arg
                885                 890                 895
Glu Thr Gly Ser Leu Thr Arg Tyr Phe Ala Arg Gly Ser Gly His Asn
            900                 905                 910
Met Ser Leu Pro Ile Gly Ile Val Ala His Ala Val Ser His Val Arg
        915                 920                 925
Arg Ser Pro Pro Ser Lys Leu Thr Leu Asn Met Gly Tyr Arg Pro Asp
    930                 935                 940
Ile Trp Arg Val Thr Pro His Cys Asn Met Glu Ile Ile Ala Asn Gly
945                 950                 955                 960
Val Lys Thr Pro Ile Gln Gly Ser Pro Leu Ala Arg His Ala Phe Phe
                965                 970                 975
Leu Glu Val His Asp Thr Leu Tyr Ile His His Phe Gly Arg Ala Tyr
            980                 985                 990
Met Asn Tyr Ser Leu Asp Ala Arg Arg Arg Gln Thr Ala His Phe Val
        995                 1000                1005
Ser Met Gly Leu Asn Arg Ile Phe
    1010                1015


<210> 96
<211> 346
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 96
Met Gln Ala Asp Ile Leu Asp Gly Lys Gln Lys Arg Val Asn Leu Asn
                  5                  10                  15
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Ser Lys Arg Leu Val Asn Cys Asn Gln Val Asp Val Asn Gln Leu Val
                20                  25                  30
Pro Ile Lys Tyr Lys Trp Ala Trp Glu His Tyr Leu Asn Gly Cys Ala
            35                  40                  45
Asn Asn Trp Leu Pro Thr Glu Ile Pro Met Gly Lys Asp Ile Glu Leu
        50                  55                  60
Trp Lys Ser Asp Arg Leu Ser Glu Asp Glu Arg Arg Val Ile Leu Leu
 65                  70                  75                  80
Asn Leu Gly Phe Phe Ser Thr Ala Glu Ser Leu Val Gly Asn Asn Ile
                85                  90                  95
Val Leu Ala Ile Phe Lys His Val Thr Asn Pro Glu Ala Arg Gln Tyr
            100                 105                 110
Leu Leu Arg Gln Ala Phe Glu Glu Ala Val His Thr His Thr Phe Leu
        115                 120                 125
Tyr Ile Cys Glu Ser Leu Gly Leu Asp Glu Lys Glu Ile Phe Asn Ala
    130                 135                 140
Tyr Asn Glu Arg Ala Ala Ile Lys Ala Lys Asp Asp Phe Gln Met Glu
145                 150                 155                 160
Ile Thr Gly Lys Val Leu Asp Pro Asn Phe Arg Thr Asp Ser Val Glu
                165                 170                 175
Gly Leu Gln Glu Phe Val Lys Asn Leu Val Gly Tyr Tyr Ile Ile Met
            180                 185                 190
Glu Gly Ile Phe Phe Tyr Ser Gly Phe Val Met Ile Leu Ser Phe His
        195                 200                 205
Arg Gln Asn Lys Met Ile Gly Ile Gly Glu Gln Tyr Gln Tyr Ile Leu
    210                 215                 220
Arg Asp Glu Thr Ile His Leu Asn Phe Gly Ile Asp Leu Ile Asn Gly
225                 230                 235                 240
Ile Lys Glu Glu Asn Pro Glu Ile Trp Thr Pro Glu Leu Gln Gln Glu
                245                 250                 255
Ile Val Glu Leu Ile Lys Arg Ala Val Asp Leu Glu Ile Glu Tyr Ala
            260                 265                 270
Gln Asp Cys Leu Pro Arg Gly Ile Leu Gly Leu Arg Ala Ser Met Phe
        275                 280                 285
Ile Asp Tyr Val Gln His Ile Ala Asp Arg Arg Leu Glu Arg Ile Gly
    290                 295                 300
Leu Lys Pro Ile Tyr His Thr Lys Asn Pro Phe Pro Trp Met Ser Glu
305                 310                 315                 320
Thr Ile Asp Leu Asn Lys Glu Lys Asn Phe Phe Glu Thr Arg Val Ile
                325                 330                 335
Glu Tyr Gln His Ala Ala Ser Leu Thr Trp
            340                 345


<210> 97
<211> 1053
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 97
Met Phe Thr Arg Ile Val Met Val Asp Leu Gln Glu Lys Gln Cys Thr
                5                   10                  15
Ile Val Lys Arg Asn Gly Met Phe Val Pro Phe Asp Arg Asn Arg Ile
            20                  25                  30
Phe Gln Ala Leu Glu Ala Ala Phe Arg Asp Thr Arg Arg Ile Asp Asp
        35                  40                  45
His Met Pro Leu Pro Glu Asp Leu Glu Ser Ser Ile Arg Ser Ile Thr
```

```
     50                  55                  60
His Gln Val Val Lys Glu Val Val Gln Lys Ile Thr Asp Gly Gln Val
 65                  70                  75                  80
Val Thr Val Glu Arg Ile Gln Asp Met Val Glu Ser Gln Leu Tyr Val
                 85                  90                  95
Asn Gly Leu Gln Asp Val Ala Arg Asp Tyr Ile Val Tyr Arg Asp Asp
            100                 105                 110
Arg Lys Ala His Arg Lys Lys Ser Trp Gln Ser Leu Ser Val Val Arg
        115                 120                 125
Arg Cys Gly Thr Val Val His Phe Asn Pro Met Lys Ile Ser Ala Ala
    130                 135                 140
Leu Glu Lys Ala Phe Arg Ala Thr Asp Lys Thr Glu Gly Met Thr Pro
145                 150                 155                 160
Ser Ser Val Arg Glu Glu Ile Asn Ala Leu Thr Gln Asn Ile Val Ala
                165                 170                 175
Glu Ile Glu Glu Cys Cys Pro Gln Gln Asp Arg Arg Ile Asp Ile Glu
            180                 185                 190
Lys Ile Gln Asp Ile Val Glu Gln Gln Leu Met Val Val Gly His Tyr
        195                 200                 205
Ala Val Ala Lys Asn Tyr Ile Leu Tyr Arg Glu Ala Arg Ala Arg Val
    210                 215                 220
Arg Asp Asn Arg Glu Glu Asp Gly Ser Thr Glu Lys Thr Ile Ala Glu
225                 230                 235                 240
Glu Ala Val Glu Val Leu Ser Lys Asp Gly Ser Thr Tyr Thr Met Thr
                245                 250                 255
His Ser Gln Leu Leu Ala His Leu Ala Arg Ala Cys Ser Arg Phe Pro
            260                 265                 270
Glu Thr Thr Asp Ala Ala Leu Leu Thr Asp Met Ala Phe Ala Asn Phe
        275                 280                 285
Tyr Ser Gly Ile Lys Glu Ser Glu Val Val Leu Ala Cys Ile Met Ala
    290                 295                 300
Ala Arg Ala Asn Ile Glu Lys Glu Pro Asp Tyr Ala Phe Val Ala Ala
305                 310                 315                 320
Glu Leu Leu Leu Asp Val Val Tyr Lys Glu Ala Leu Gly Lys Ser Lys
                325                 330                 335
Tyr Ala Glu Asp Leu Glu Gln Ala His Arg Asp His Phe Lys Arg Tyr
            340                 345                 350
Ile Ala Glu Gly Asp Thr Tyr Arg Leu Asn Ala Glu Leu Lys His Leu
        355                 360                 365
Phe Asp Leu Asp Ala Leu Ala Asp Ala Met Asp Leu Ser Arg Asp Leu
    370                 375                 380
Gln Phe Ser Tyr Met Gly Ile Gln Asn Leu Tyr Asp Arg Tyr Phe Asn
385                 390                 395                 400
His His Glu Gly Cys Arg Leu Glu Thr Pro Gln Ile Phe Trp Met Arg
                405                 410                 415
Val Ala Met Gly Leu Ala Leu Asn Glu Gln Asp Lys Thr Ser Trp Ala
            420                 425                 430
Ile Thr Phe Tyr Asn Leu Leu Ser Thr Phe Arg Tyr Thr Pro Ala Thr
        435                 440                 445
Pro Thr Leu Phe Asn Ser Gly Met Arg His Ser Gln Leu Ser Ser Cys
    450                 455                 460
Tyr Leu Ser Thr Val Gln Asp Asn Leu Val Asn Ile Tyr Lys Val Ile
465                 470                 475                 480
Ala Asp Asn Ala Met Leu Ser Lys Trp Ala Gly Gly Ile Gly Asn Asp
                485                 490                 495
Trp Thr Ala Ile Arg Ala Thr Gly Ala Leu Ile Lys Gly Thr Asn Gly
            500                 505                 510
```

Arg Ser Gln Gly Val Ile Pro Phe Ile Lys Val Thr Asn Asp Thr Ala
515 520 525
Val Ala Val Asn Gln Gly Gly Lys Arg Lys Gly Ala Val Cys Val Tyr
530 535 540
Leu Glu Val Trp His Leu Asp Tyr Glu Asp Phe Leu Glu Leu Arg Lys
545 550 555 560
Asn Thr Gly Asp Glu Arg Arg Arg Ala His Asp Val Asn Ile Ala Ser
565 570 575
Trp Ile Pro Asp Leu Phe Phe Lys Arg Leu Gln Gln Lys Gly Thr Trp
580 585 590
Thr Leu Phe Ser Pro Asp Asp Val Pro Gly Leu His Asp Ala Tyr Gly
595 600 605
Glu Glu Phe Glu Arg Leu Tyr Glu Glu Tyr Glu Arg Lys Val Asp Thr
610 615 620
Gly Glu Ile Arg Leu Phe Lys Lys Val Glu Ala Glu Asp Leu Trp Arg
625 630 635 640
Lys Met Leu Ser Met Leu Phe Glu Thr Gly His Pro Trp Met Thr Phe
645 650 655
Lys Asp Pro Ser Asn Ile Arg Ser Ala Gln Asp His Lys Gly Val Val
660 665 670
Arg Cys Ser Asn Leu Cys Thr Glu Ile Leu Leu Asn Cys Ser Glu Thr
675 680 685
Glu Thr Ala Val Cys Asn Leu Gly Ser Ile Asn Leu Val Gln His Ile
690 695 700
Val Gly Asp Gly Leu Asp Glu Glu Lys Leu Ser Glu Thr Ile Ser Ile
705 710 715 720
Ala Val Arg Met Leu Asp Asn Val Ile Asp Ile Asn Phe Tyr Pro Thr
725 730 735
Lys Glu Ala Lys Glu Ala Asn Phe Ala His Arg Ala Ile Gly Leu Gly
740 745 750
Val Met Gly Phe Gln Asp Ala Leu Tyr Lys Leu Asp Ile Ser Tyr Ala
755 760 765
Ser Gln Glu Ala Val Glu Phe Ala Asp Tyr Ser Ser Glu Leu Ile Ser
770 775 780
Tyr Tyr Ala Ile Gln Ala Ser Cys Leu Leu Ala Lys Glu Arg Gly Thr
785 790 795 800
Tyr Ser Ser Tyr Lys Gly Ser Lys Trp Asp Arg Gly Leu Leu Pro Ile
805 810 815
Asp Thr Ile Gln Leu Leu Ala Asn Tyr Arg Gly Glu Ala Asn Leu Gln
820 825 830
Met Asp Thr Ser Ser Arg Lys Asp Trp Glu Pro Ile Arg Ser Leu Val
835 840 845
Lys Glu His Gly Met Arg His Cys Gln Leu Met Ala Ile Ala Pro Thr
850 855 860
Ala Thr Ile Ser Asn Ile Ile Gly Val Thr Gln Ser Ile Glu Pro Thr
865 870 875 880
Tyr Lys His Leu Phe Val Lys Ser Asn Leu Ser Gly Glu Phe Thr Ile
885 890 895
Pro Asn Val Tyr Leu Ile Glu Lys Leu Lys Lys Leu Gly Ile Trp Asp
900 905 910
Ala Asp Met Leu Asp Asp Leu Lys Tyr Phe Asp Gly Ser Leu Leu Glu
915 920 925
Ile Glu Arg Ile Pro Asp His Leu Lys His Ile Phe Leu Thr Ala Phe
930 935 940
Glu Ile Glu Pro Glu Trp Ile Ile Glu Cys Ala Ser Arg Arg Gln Lys
945 950 955 960
Trp Ile Asp Met Gly Gln Ser Leu Asn Leu Tyr Leu Ala Gln Pro Asp

```
                965                 970                 975
Gly Lys Lys Leu Ser Asn Met Tyr Leu Thr Ala Trp Lys Lys Gly Leu
            980                 985                 990
Lys Thr Thr Tyr Tyr Leu Arg Ser Ser Ser Ala Thr Thr Val Glu Lys
        995                 1000                1005
Ser Phe Val Asp Ile Asn Lys Arg Gly Ile Gln Pro Arg Trp Met Lys
    1010                1015                1020
Asn Lys Ser Ala Ser Ala Gly Ile Ile Val Glu Arg Ala Lys Lys Ala
1025                1030                1035                1040
Pro Val Cys Ser Leu Glu Glu Gly Cys Glu Ala Cys Gln
                1045                1050
```

<210> 98
<211> 1531
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 98

```
Met Ser Ser Glu Lys Asp Ile Lys Ser Thr Cys Ser Lys Phe Ser Leu
                5                  10                  15
Ser Val Val Ala Ala Ile Leu Ala Ser Val Ser Gly Leu Ala Ser Cys
            20                  25                  30
Val Asp Leu His Ala Gly Gly Gln Ser Val Asn Glu Leu Val Tyr Val
        35                  40                  45
Gly Pro Gln Ala Val Leu Leu Leu Asp Gln Ile Arg Asp Leu Phe Val
    50                  55                  60
Gly Ser Lys Asp Ser Gln Ala Glu Gly Gln Tyr Arg Leu Ile Val Gly
65                  70                  75                  80
Asp Pro Ser Ser Phe Gln Glu Lys Asp Ala Asp Thr Leu Pro Gly Lys
                85                  90                  95
Val Glu Gln Ser Thr Leu Phe Ser Val Thr Asn Pro Val Val Phe Gln
            100                 105                 110
Gly Val Asp Gln Gln Asp Gln Val Ser Ser Gln Gly Leu Ile Cys Ser
        115                 120                 125
Phe Thr Ser Ser Asn Leu Asp Ser Pro Arg Asp Gly Glu Ser Phe Leu
    130                 135                 140
Gly Ile Ala Phe Val Gly Asp Ser Ser Lys Ala Gly Ile Thr Leu Thr
145                 150                 155                 160
Asp Val Lys Ala Ser Leu Ser Gly Ala Ala Leu Tyr Ser Thr Glu Asp
                165                 170                 175
Leu Ile Phe Glu Lys Ile Lys Gly Gly Leu Glu Phe Ala Ser Cys Ser
            180                 185                 190
Ser Leu Glu Gln Gly Gly Ala Cys Ala Ala Gln Ser Ile Leu Ile His
        195                 200                 205
Asp Cys Gln Gly Leu Gln Val Lys His Cys Thr Thr Ala Val Asn Ala
    210                 215                 220
Glu Gly Ser Ser Ala Asn Asp His Leu Gly Phe Gly Gly Gly Ala Phe
225                 230                 235                 240
Phe Val Thr Gly Ser Leu Ser Gly Glu Lys Ser Leu Tyr Met Pro Ala
                245                 250                 255
Gly Asp Met Val Val Ala Asn Cys Asp Gly Ala Ile Ser Phe Glu Gly
            260                 265                 270
Asn Ser Ala Asn Phe Ala Asn Gly Gly Ala Ile Ala Ala Ser Gly Lys
        275                 280                 285
Val Leu Phe Val Ala Asn Asp Lys Lys Thr Ser Phe Ile Glu Asn Arg
    290                 295                 300
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Ala Leu Ser Gly Gly Ala Ile Ala Ala Ser Ser Asp Ile Ala Phe Gln
305                 310                 315                 320
Asn Cys Ala Glu Leu Val Phe Lys Gly Asn Cys Ala Ile Gly Thr Glu
                325                 330                 335
Asp Lys Gly Ser Leu Gly Gly Gly Ala Ile Ser Ser Leu Gly Thr Val
            340                 345                 350
Leu Leu Gln Gly Asn His Gly Ile Thr Cys Asp Lys Asn Glu Ser Ala
        355                 360                 365
Ser Gln Gly Gly Ala Ile Phe Gly Lys Asn Cys Gln Ile Ser Asp Asn
    370                 375                 380
Glu Gly Pro Val Val Phe Arg Asp Ser Thr Ala Cys Leu Gly Gly Gly
385                 390                 395                 400
Ala Ile Ala Ala Gln Glu Ile Val Ser Ile Gln Asn Asn Gln Ala Gly
                405                 410                 415
Ile Ser Phe Glu Gly Gly Lys Ala Ser Phe Gly Gly Gly Ile Ala Cys
            420                 425                 430
Gly Ser Phe Ser Ser Ala Gly Gly Ala Ser Val Leu Gly Thr Ile Asp
        435                 440                 445
Ile Ser Lys Asn Leu Gly Ala Ile Ser Phe Ser Arg Thr Leu Cys Thr
    450                 455                 460
Thr Ser Asp Leu Gly Gln Met Glu Tyr Gln Gly Gly Gly Ala Leu Phe
465                 470                 475                 480
Gly Glu Asn Ile Ser Leu Ser Glu Asn Ala Gly Val Leu Thr Phe Lys
                485                 490                 495
Asp Asn Ile Val Lys Thr Phe Ala Ser Asn Gly Lys Ile Leu Gly Gly
            500                 505                 510
Gly Ala Ile Leu Ala Thr Gly Lys Val Glu Ile Thr Asn Asn Ser Glu
        515                 520                 525
Gly Ile Ser Phe Thr Gly Asn Ala Arg Ala Pro Gln Ala Leu Pro Thr
    530                 535                 540
Gln Glu Glu Phe Pro Leu Phe Ser Lys Lys Glu Gly Arg Pro Leu Ser
545                 550                 555                 560
Ser Gly Tyr Ser Gly Gly Gly Ala Ile Leu Gly Arg Glu Val Ala Ile
                565                 570                 575
Leu His Asn Ala Ala Val Val Phe Glu Gln Asn Arg Leu Gln Cys Ser
            580                 585                 590
Glu Glu Glu Ala Thr Leu Leu Gly Cys Cys Gly Gly Gly Ala Val His
        595                 600                 605
Gly Met Asp Ser Thr Ser Ile Val Gly Asn Ser Ser Val Arg Phe Gly
    610                 615                 620
Asn Asn Tyr Ala Met Gly Gln Gly Val Ser Gly Gly Ala Leu Leu Ser
625                 630                 635                 640
Lys Thr Val Gln Leu Ala Gly Asn Gly Ser Val Asp Phe Ser Arg Asn
                645                 650                 655
Ile Ala Ser Leu Gly Gly Gly Ala Leu Gln Ala Ser Glu Gly Asn Cys
            660                 665                 670
Glu Leu Val Asp Asn Gly Tyr Val Leu Phe Arg Asp Asn Arg Gly Arg
        675                 680                 685
Val Tyr Gly Gly Ala Ile Ser Cys Leu Arg Gly Asp Val Val Ile Ser
    690                 695                 700
Gly Asn Lys Gly Arg Val Glu Phe Lys Asp Asn Ile Ala Thr Arg Leu
705                 710                 715                 720
Tyr Val Glu Glu Thr Val Glu Lys Val Glu Glu Val Glu Pro Ala Pro
                725                 730                 735
Glu Gln Lys Asp Asn Asn Glu Leu Ser Phe Leu Gly Arg Ala Glu Gln
            740                 745                 750
Ser Phe Ile Thr Ala Ala Asn Gln Ala Leu Phe Ala Ser Glu Asp Gly
```

755 760 765
Asp Leu Ser Pro Glu Ser Ser Ile Ser Ser Glu Glu Leu Ala Lys Arg
770 775 780
Arg Glu Cys Ala Gly Gly Ala Ile Phe Ala Lys Arg Val Arg Ile Val
785 790 795 800
Asp Asn Gln Glu Ala Val Val Phe Ser Asn Asn Phe Ser Asp Ile Tyr
805 810 815
Gly Gly Ala Ile Phe Thr Gly Ser Leu Arg Glu Glu Asp Lys Leu Asp
820 825 830
Gly Gln Ile Pro Glu Val Leu Ile Ser Gly Asn Ala Gly Asp Val Val
835 840 845
Phe Ser Gly Asn Ser Ser Lys Arg Asp Glu His Leu Pro His Thr Gly
850 855 860
Gly Gly Ala Ile Cys Thr Gln Asn Leu Thr Ile Ser Gln Asn Thr Gly
865 870 875 880
Asn Val Leu Phe Tyr Asn Asn Val Ala Cys Ser Gly Gly Ala Val Arg
885 890 895
Ile Glu Asp His Gly Asn Val Leu Leu Glu Ala Phe Gly Gly Asp Ile
900 905 910
Val Phe Lys Gly Asn Ser Ser Phe Arg Ala Gln Gly Ser Asp Ala Ile
915 920 925
Tyr Phe Ala Gly Lys Glu Ser His Ile Thr Ala Leu Asn Ala Thr Glu
930 935 940
Gly His Ala Ile Val Phe His Asp Ala Leu Val Phe Glu Asn Leu Glu
945 950 955 960
Glu Arg Lys Ser Ala Glu Val Leu Leu Ile Asn Ser Arg Glu Asn Pro
965 970 975
Gly Tyr Thr Gly Ser Ile Arg Phe Leu Glu Ala Glu Ser Lys Val Pro
980 985 990
Gln Cys Ile His Val Gln Gln Gly Ser Leu Glu Leu Leu Asn Gly Ala
995 1000 1005
Thr Leu Cys Ser Tyr Gly Phe Lys Gln Asp Ala Gly Ala Lys Leu Val
1010 1015 1020
Leu Ala Ala Gly Ala Lys Leu Lys Ile Leu Asp Ser Gly Thr Pro Val
1025 1030 1035 1040
Gln Gln Gly His Ala Ile Ser Lys Pro Glu Ala Glu Ile Glu Ser Ser
1045 1050 1055
Ser Glu Pro Glu Gly Ala His Ser Leu Trp Ile Ala Lys Asn Ala Gln
1060 1065 1070
Thr Thr Val Pro Met Val Asp Ile His Thr Ile Ser Val Asp Leu Ala
1075 1080 1085
Ser Phe Ser Ser Ser Gln Gln Glu Gly Thr Val Glu Ala Pro Gln Val
1090 1095 1100
Ile Val Pro Gly Gly Ser Tyr Val Arg Ser Gly Glu Leu Asn Leu Glu
1105 1110 1115 1120
Leu Val Asn Thr Thr Gly Thr Gly Tyr Glu Asn His Ala Leu Leu Lys
1125 1130 1135
Asn Glu Ala Lys Val Pro Leu Met Ser Phe Val Ala Ser Gly Asp Glu
1140 1145 1150
Ala Ser Ala Glu Ile Ser Asn Leu Ser Val Ser Asp Leu Gln Ile His
1155 1160 1165
Val Val Thr Pro Glu Ile Glu Glu Asp Thr Tyr Gly His Met Gly Asp
1170 1175 1180
Trp Ser Glu Ala Lys Ile Gln Asp Gly Thr Leu Val Ile Ser Trp Asn
1185 1190 1195 1200
Pro Thr Gly Tyr Arg Leu Asp Pro Gln Lys Ala Gly Ala Leu Val Phe
1205 1210 1215

```
Asn Ala Leu Trp Glu Glu Gly Ala Val Leu Ser Ala Leu Lys Asn Ala
            1220                1225                1230
Arg Phe Ala His Asn Leu Thr Ala Gln Arg Met Glu Phe Asp Tyr Ser
        1235                1240                1245
Thr Asn Val Trp Gly Phe Ala Phe Gly Gly Phe Arg Thr Leu Ser Ala
    1250                1255                1260
Glu Asn Leu Val Ala Ile Asp Gly Tyr Lys Gly Ala Tyr Gly Gly Ala
1265                1270                1275                1280
Ser Ala Gly Val Asp Ile Gln Leu Met Glu Asp Phe Val Leu Gly Val
                1285                1290                1295
Ser Gly Ala Ala Phe Leu Gly Lys Met Asp Ser Gln Lys Phe Asp Ala
            1300                1305                1310
Glu Val Ser Arg Lys Gly Val Val Gly Ser Val Tyr Thr Gly Phe Leu
        1315                1320                1325
Ala Gly Ser Trp Phe Phe Lys Gly Gln Tyr Ser Leu Gly Glu Thr Gln
    1330                1335                1340
Asn Asp Met Lys Thr Arg Tyr Gly Val Leu Gly Glu Ser Ser Ala Ser
1345                1350                1355                1360
Trp Thr Ser Arg Gly Val Leu Ala Asp Ala Leu Val Glu Tyr Arg Ser
                1365                1370                1375
Leu Val Gly Pro Val Arg Pro Thr Phe Tyr Ala Leu His Phe Asn Pro
            1380                1385                1390
Tyr Val Glu Val Ser Tyr Ala Ser Met Lys Phe Pro Gly Phe Thr Glu
        1395                1400                1405
Gln Gly Arg Glu Ala Arg Ser Phe Glu Asp Ala Ser Leu Thr Asn Ile
    1410                1415                1420
Thr Ile Pro Leu Gly Met Lys Phe Glu Leu Ala Phe Ile Lys Gly Gln
1425                1430                1435                1440
Phe Ser Glu Val Asn Ser Leu Gly Ile Ser Tyr Ala Trp Glu Ala Tyr
                1445                1450                1455
Arg Lys Val Glu Gly Gly Ala Val Gln Leu Leu Glu Ala Gly Phe Asp
            1460                1465                1470
Trp Glu Gly Ala Pro Met Asp Leu Pro Arg Gln Glu Leu Arg Val Ala
        1475                1480                1485
Leu Glu Asn Asn Thr Glu Trp Ser Ser Tyr Phe Ser Thr Val Leu Gly
    1490                1495                1500
Leu Thr Ala Phe Cys Gly Gly Phe Thr Ser Thr Asp Ser Lys Leu Gly
1505                1510                1515                1520
Tyr Glu Ala Asn Thr Gly Leu Arg Leu Ile Phe
                1525                1530
```

<210> 99
<211> 474
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 99

```
Met Lys Ile Ile His Thr Ala Ile Glu Phe Ala Pro Val Ile Lys Ala
                  5                  10                  15
Gly Gly Leu Gly Asp Ala Leu Tyr Gly Leu Ala Lys Ala Leu Ala Ala
             20                  25                  30
Asn His Thr Thr Glu Val Val Ile Pro Leu Tyr Pro Lys Leu Phe Thr
         35                  40                  45
Leu Pro Lys Glu Gln Asp Leu Cys Ser Ile Gln Lys Leu Ser Tyr Phe
     50                  55                  60
Phe Ala Gly Glu Gln Glu Ala Thr Ala Phe Ser Tyr Phe Tyr Glu Gly
```

```
 65                  70                  75                  80
Ile Lys Val Thr Leu Phe Lys Leu Asp Thr Gln Pro Glu Leu Phe Glu
                 85                  90                  95
Asn Ala Glu Thr Ile Tyr Thr Ser Asp Asp Ala Phe Arg Phe Cys Ala
            100                 105                 110
Phe Ser Ala Ala Ala Ala Ser Tyr Ile Gln Lys Glu Gly Ala Asn Ile
        115                 120                 125
Val His Leu His Asp Trp His Thr Gly Leu Val Ala Gly Leu Leu Lys
    130                 135                 140
Gln Gln Pro Cys Ser Gln Leu Gln Lys Ile Val Leu Thr Leu His Asn
145                 150                 155                 160
Phe Gly Tyr Arg Gly Tyr Thr Thr Arg Glu Ile Leu Glu Ala Ser Ser
                165                 170                 175
Leu Asn Glu Phe Tyr Ile Ser Gln Tyr Gln Leu Phe Arg Asp Pro Gln
            180                 185                 190
Thr Cys Val Leu Leu Lys Gly Ala Leu Tyr Cys Ser Asp Phe Val Thr
        195                 200                 205
Thr Val Ser Pro Thr Tyr Ala Lys Glu Ile Leu Glu Asp Tyr Ser Asp
    210                 215                 220
Tyr Glu Ile His Asp Ala Ile Thr Ala Arg Gln His His Leu Arg Gly
225                 230                 235                 240
Ile Leu Asn Gly Ile Asp Thr Thr Ile Trp Gly Pro Glu Thr Asp Pro
                245                 250                 255
Asn Leu Ala Lys Asn Tyr Thr Lys Glu Leu Phe Glu Thr Pro Ser Ile
            260                 265                 270
Phe Phe Glu Ala Lys Ala Glu Asn Lys Lys Ala Leu Tyr Glu Arg Leu
        275                 280                 285
Gly Leu Ser Leu Glu His Ser Pro Cys Val Cys Ile Ile Ser Arg Ile
    290                 295                 300
Ala Glu Gln Lys Gly Pro His Phe Met Lys Gln Ala Ile Leu His Ala
305                 310                 315                 320
Leu Glu Asn Ala Tyr Thr Leu Ile Ile Ile Gly Thr Cys Tyr Gly Asn
                325                 330                 335
Gln Leu His Glu Glu Phe Ala Asn Leu Gln Glu Ser Leu Ala Asn Ser
            340                 345                 350
Pro Asp Val Arg Ile Leu Leu Thr Tyr Ser Asp Val Leu Ala Arg Gln
        355                 360                 365
Ile Phe Ala Ala Ala Asp Met Ile Cys Ile Pro Ser Met Phe Glu Pro
    370                 375                 380
Cys Gly Leu Thr Gln Met Ile Gly Met Arg Tyr Gly Thr Val Pro Leu
385                 390                 395                 400
Val Arg Ala Thr Gly Gly Leu Ala Asp Thr Val Ala Asn Gly Ile Asn
                405                 410                 415
Gly Phe Ser Phe Phe Asn Pro His Asp Phe Tyr Glu Phe Arg Asn Met
            420                 425                 430
Leu Ser Glu Ala Val Thr Thr Tyr Arg Thr Asn His Asp Lys Trp Gln
        435                 440                 445
His Ile Val Arg Ala Cys Leu Asp Phe Ser Ser Asp Leu Glu Thr Ala
    450                 455                 460
Ala Asn Lys Tyr Leu Glu Ile Tyr Lys Gln
465                 470
```

<210> 100
<211> 393
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 100
Met Lys Lys Leu Leu Lys Ser Val Leu Val Phe Ala Ala Leu Ser Ser
5 10 15
Ala Ser Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ala Glu Pro Ser
20 25 30
Leu Met Ile Asp Gly Ile Leu Trp Glu Gly Phe Gly Gly Asp Pro Cys
35 40 45
Asp Pro Cys Ala Thr Trp Cys Asp Ala Ile Ser Met Arg Val Gly Tyr
50 55 60
Tyr Gly Asp Phe Val Phe Asp Arg Val Leu Lys Thr Asp Val Asn Lys
65 70 75 80
Glu Phe Gln Met Gly Ala Lys Pro Thr Thr Asp Thr Gly Asn Ser Ala
85 90 95
Ala Pro Ser Thr Leu Thr Ala Arg Glu Asn Pro Ala Tyr Gly Arg His
100 105 110
Met Gln Asp Ala Glu Met Phe Thr Asn Ala Ala Cys Met Ala Leu Asn
115 120 125
Ile Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Thr Ser Gly
130 135 140
Tyr Leu Lys Gly Asn Ser Ala Ser Phe Asn Leu Val Gly Leu Phe Gly
145 150 155 160
Asp Asn Glu Asn Gln Lys Thr Val Lys Ala Glu Ser Val Pro Asn Met
165 170 175
Ser Phe Asp Gln Ser Val Val Glu Leu Tyr Thr Asp Thr Thr Phe Ala
180 185 190
Trp Ser Val Gly Ala Arg Ala Ala Leu Trp Glu Cys Gly Cys Ala Thr
195 200 205
Leu Gly Ala Ser Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu Glu
210 215 220
Leu Asn Val Leu Cys Asn Ala Ala Glu Phe Thr Ile Asn Lys Pro Lys
225 230 235 240
Gly Tyr Val Gly Lys Glu Phe Pro Leu Asp Leu Thr Ala Gly Thr Asp
245 250 255
Ala Ala Thr Gly Thr Lys Asp Ala Ser Ile Asp Tyr His Glu Trp Gln
260 265 270
Ala Ser Leu Ala Leu Ser Tyr Arg Leu Asn Met Phe Thr Pro Tyr Ile
275 280 285
Gly Val Lys Trp Ser Arg Ala Ser Phe Asp Ala Asp Thr Ile Arg Ile
290 295 300
Ala Gln Pro Lys Ser Ala Thr Ala Ile Phe Asp Thr Thr Thr Leu Asn
305 310 315 320
Pro Thr Ile Ala Gly Ala Gly Asp Val Lys Thr Gly Ala Glu Gly Gln
325 330 335
Leu Gly Asp Thr Met Gln Ile Val Ser Leu Gln Leu Asn Lys Met Lys
340 345 350
Ser Arg Lys Ser Cys Gly Ile Ala Val Gly Thr Thr Ile Val Asp Ala
355 360 365
Asp Lys Tyr Ala Val Thr Val Glu Thr Arg Leu Ile Asp Glu Arg Ala
370 375 380
Ala His Val Asn Ala Gln Phe Arg Phe
385 390

<210> 101
<211> 195
<212> PRT

<213> Chlamydia trachomatis serovar D

<400> 101
Met Gly Ser Leu Val Gly Arg Gln Ala Pro Asp Phe Ser Gly Lys Ala
1 5 10 15
Val Val Cys Gly Glu Glu Lys Glu Ile Ser Leu Ala Asp Phe Arg Gly
20 25 30
Lys Tyr Val Val Leu Phe Phe Tyr Pro Lys Asp Phe Thr Tyr Val Cys
35 40 45
Pro Thr Glu Leu His Ala Phe Gln Asp Arg Leu Val Asp Phe Glu Glu
50 55 60
Arg Gly Ala Val Val Leu Gly Cys Ser Val Asp Asp Ile Glu Thr His
65 70 75 80
Ser Arg Trp Leu Ala Val Ala Arg Asn Ala Gly Gly Ile Glu Gly Thr
85 90 95
Glu Tyr Pro Leu Leu Ala Asp Pro Ser Phe Lys Ile Ser Glu Ala Phe
100 105 110
Gly Val Leu Asn Pro Glu Gly Ser Leu Ala Leu Arg Ala Thr Phe Leu
115 120 125
Ile Asp Lys Tyr Gly Val Val Arg His Ala Val Ile Asn Asp Leu Pro
130 135 140
Leu Gly Arg Ser Ile Asp Glu Glu Leu Arg Ile Leu Asp Ser Leu Ile
145 150 155 160
Phe Phe Glu Asn His Gly Met Val Cys Pro Ala Asn Trp Arg Ser Gly
165 170 175
Glu Arg Gly Met Val Pro Ser Glu Glu Gly Leu Lys Glu Tyr Phe Gln
180 185 190
Thr Met Asp
195

<210> 102
<211> 86
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 102
Met Ser Gln Asn Lys Asn Ser Ala Phe Met Gln Pro Val Asn Val Ser
1 5 10 15
Ala Asp Leu Ala Ala Ile Val Gly Ala Gly Pro Met Pro Arg Thr Glu
20 25 30
Ile Ile Lys Lys Met Trp Asp Tyr Ile Lys Lys Asn Gly Leu Gln Asp
35 40 45
Pro Thr Asn Lys Arg Asn Ile Asn Pro Asp Asp Lys Leu Ala Lys Val
50 55 60
Phe Gly Thr Glu Lys Pro Ile Asp Met Phe Gln Met Thr Lys Met Val
65 70 75 80
Ser Gln His Ile Ile Lys
85

<210> 103
<211> 394
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 103

```
Met Ser Lys Glu Thr Phe Gln Arg Asn Lys Pro His Ile Asn Ile Gly
                5                  10                  15
Thr Ile Gly His Val Asp His Gly Lys Thr Thr Leu Thr Ala Ala Ile
            20                  25                  30
Thr Arg Ala Leu Ser Gly Asp Gly Leu Ala Asp Phe Arg Asp Tyr Ser
        35                  40                  45
Ser Ile Asp Asn Thr Pro Glu Glu Lys Ala Arg Gly Ile Thr Ile Asn
    50                  55                  60
Ala Ser His Val Glu Tyr Glu Thr Ala Asn Arg His Tyr Ala His Val
65                  70                  75                  80
Asp Cys Pro Gly His Ala Asp Tyr Val Lys Asn Met Ile Thr Gly Ala
                85                  90                  95
Ala Gln Met Asp Gly Ala Ile Leu Val Val Ser Ala Thr Asp Gly Ala
            100                 105                 110
Met Pro Gln Thr Lys Glu His Ile Leu Leu Ala Arg Gln Val Gly Val
        115                 120                 125
Pro Tyr Ile Val Val Phe Leu Asn Lys Ile Asp Met Ile Ser Glu Glu
    130                 135                 140
Asp Ala Glu Leu Val Asp Leu Val Glu Met Glu Leu Val Glu Leu Leu
145                 150                 155                 160
Glu Glu Lys Gly Tyr Lys Gly Cys Pro Ile Ile Arg Gly Ser Ala Leu
                165                 170                 175
Lys Ala Leu Glu Gly Asp Ala Ala Tyr Ile Glu Lys Val Arg Glu Leu
            180                 185                 190
Met Gln Ala Val Asp Asp Asn Ile Pro Thr Pro Glu Arg Glu Ile Asp
        195                 200                 205
Lys Pro Phe Leu Met Pro Ile Glu Asp Val Phe Ser Ile Ser Gly Arg
    210                 215                 220
Gly Thr Val Val Thr Gly Arg Ile Glu Arg Gly Ile Val Lys Val Ser
225                 230                 235                 240
Asp Lys Val Gln Leu Val Gly Leu Arg Asp Thr Lys Glu Thr Ile Val
                245                 250                 255
Thr Gly Val Glu Met Phe Arg Lys Glu Leu Pro Glu Gly Arg Ala Gly
            260                 265                 270
Glu Asn Val Gly Leu Leu Leu Arg Gly Ile Gly Lys Asn Asp Val Glu
        275                 280                 285
Arg Gly Met Val Val Cys Leu Pro Asn Ser Val Lys Pro His Thr Gln
    290                 295                 300
Phe Lys Cys Ala Val Tyr Val Leu Gln Lys Glu Glu Gly Gly Arg His
305                 310                 315                 320
Lys Pro Phe Phe Thr Gly Tyr Arg Pro Gln Phe Phe Phe Arg Thr Thr
                325                 330                 335
Asp Val Thr Gly Val Val Thr Leu Pro Glu Gly Ile Glu Met Val Met
            340                 345                 350
Pro Gly Asp Asn Val Glu Phe Glu Val Gln Leu Ile Ser Pro Val Ala
        355                 360                 365
Leu Glu Glu Gly Met Arg Phe Ala Ile Arg Glu Gly Gly Arg Thr Ile
    370                 375                 380
Gly Ala Gly Thr Ile Ser Lys Ile Ile Ala
385                 390
```

<210> 104
<211> 82
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 104
Met Gly Gln Asp His Arg Arg Lys Phe Leu Lys Lys Val Ser Phe Val
1 5 10 15
Lys Lys Gln Ala Ala Phe Ala Gly Asn Phe Ile Glu Glu Ile Lys Lys
20 25 30
Ile Glu Trp Val Asn Lys Arg Asp Leu Lys Arg Tyr Val Lys Ile Val
35 40 45
Leu Met Asn Ile Phe Gly Phe Gly Phe Ser Ile Tyr Cys Val Asp Leu
50 55 60
Ala Leu Arg Lys Ser Leu Ser Leu Phe Gly Lys Val Thr Ser Phe Phe
65 70 75 80
Phe Gly

<210> 105
<211> 379
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 105
Met Val Ile Pro Lys Val Asp Leu Gly Glu Ser Ala Val Met Met Gly
1 5 10 15
Tyr Lys Leu Thr Ser Gln Leu Ala Met Leu Ser Ile Leu Leu Thr Phe
20 25 30
Thr His Thr Met Gly His Ala Ser Gln Met Ser Gln Thr Leu Pro Thr
35 40 45
Ile Ile Glu Ala Gln Ala Glu Glu Ala Leu Gln Ala Asp Arg Gly Val
50 55 60
Ala Gly Gln Ala Leu Lys Lys Leu Arg Lys Lys Arg Cys Ala Ser Arg
65 70 75 80
Lys Ser Ala Cys Lys Ala Ser Phe Lys Lys Lys Asp Phe Phe Ser Cys
85 90 95
Ile Thr Asn Gly Leu Phe Ser Gly Asn His Glu Gln Arg Leu Thr Ala
100 105 110
Lys Lys Glu Asn Lys Ala Arg Gly Lys Glu Pro Arg Val Val Val Gln
115 120 125
Thr Thr Lys Lys Arg Gln Ile Thr Gln Ser Glu Lys Glu Phe Phe Asp
130 135 140
Trp Leu Cys Asn Ser Lys Arg Glu Arg Lys Leu Leu Lys Lys Lys Pro
145 150 155 160
Val Asn Thr Ser Leu Ala Lys Ser Glu Glu Leu Ser Pro Lys Glu Ala
165 170 175
Ala Ile Ala Ala Ala Arg Ala Ser Leu Ser Pro Glu Glu Lys Arg Gln
180 185 190
Leu Ile Arg Glu Trp Leu Ala Glu Glu Lys Thr Ala Arg Lys Ser Gly
195 200 205
Arg Ala Ala Cys Ala Val Ser Glu Asn Leu Lys Arg Asp Gly Ser Ile
210 215 220
Thr Ser Thr Leu Arg Tyr Asp Ala Glu Lys Ala Leu Thr Thr Arg Val
225 230 235 240
Lys Arg Asn Glu Asn Ser Val Asn Ala Arg Ala Arg Gln Arg Ala Ala
245 250 255
Leu Gln Lys Ala Lys Lys Ala Lys Thr Glu Lys Pro Glu Ala Asp Glu
260 265 270
Lys Ala Ala Glu Ala Val Ala Ala Ala Pro Thr Lys Gln Ala His Lys
275 280 285

Glu Pro Glu Asn Tyr Phe Ala Ala Thr Ala Ser Thr Asn Asn Thr Asn
    290   295   300
Val Met Ser Tyr Leu Asn Ala His Gln Tyr Arg Cys Asp Ser Ser Glu
305   310   315   320
Thr Asp Trp Pro Cys Ser Ser Cys Val Thr Lys Arg Arg Ala Asn Phe
                325   330   335
Gly Ile Ser Val Cys Thr Met Val Val Thr Val Ile Ala Met Ile Val
            340   345   350
Gly Ala Val Ile Ile Ser Asn Ala Thr Asp Ser Thr Val Ala Gly Ser
        355   360   365
Ser Gly Thr Gly Gly Gly Gly Ser Thr Gln Pro
    370   375

<210> 106
<211> 563
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 106
Met Val Tyr Phe Arg Ala His Gln Pro Arg His Thr Pro Lys Thr Phe
                5   10   15
Pro Leu Glu Val His His Ser Phe Ser Asp Lys His Pro Gln Ile Ala
            20   25   30
Lys Ala Met Arg Ile Thr Gly Ile Ala Leu Ala Ala Leu Ser Leu Leu
        35   40   45
Ala Val Val Ala Cys Val Ile Ala Val Ser Ala Gly Gly Ala Ala Ile
    50   55   60
Pro Leu Ala Val Ile Ser Gly Ile Ala Val Met Ser Gly Leu Leu Ser
65   70   75   80
Ala Ala Thr Ile Ile Cys Ser Ala Lys Lys Ala Leu Ala Gln Arg Lys
                85   90   95
Gln Lys Gln Leu Glu Glu Ser Leu Pro Leu Asp Asn Ala Thr Glu His
            100   105   110
Val Ser Tyr Leu Thr Ser Asp Thr Ser Tyr Phe Asn Gln Trp Glu Ser
        115   120   125
Leu Gly Ala Leu Asn Lys Gln Leu Ser Gln Ile Asp Leu Thr Ile Gln
    130   135   140
Ala Pro Glu Lys Lys Leu Leu Lys Glu Val Leu Gly Ser Arg Tyr Asp
145   150   155   160
Ser Ile Asn His Ser Ile Glu Glu Ile Ser Asp Arg Phe Thr Lys Met
                165   170   175
Leu Ser Leu Leu Arg Leu Arg Glu His Phe Tyr Arg Gly Glu Glu Arg
            180   185   190
Tyr Ala Pro Tyr Leu Ser Pro Pro Leu Leu Asn Lys Asn Arg Leu Leu
        195   200   205
Thr Gln Ile Thr Ser Asn Met Ile Arg Met Leu Pro Lys Ser Gly Gly
    210   215   220
Val Phe Ser Leu Lys Ala Asn Thr Leu Ser His Ala Ser Arg Thr Leu
225   230   235   240
Tyr Thr Val Leu Lys Val Ala Leu Ser Leu Gly Val Leu Ala Gly Val
                245   250   255
Ala Ala Leu Ile Ile Phe Leu Pro Pro Ser Leu Pro Phe Ile Ala Val
            260   265   270
Ile Gly Val Ser Ser Leu Ala Leu Gly Met Ala Ser Phe Leu Met Ile
        275   280   285
Arg Gly Ile Lys Tyr Leu Leu Glu His Ser Pro Leu Asn Arg Lys Gln

```
    290                 295                 300
Leu Ala Lys Asp Ile Gln Lys Thr Ile Gly Pro Asp Val Leu Ala Ser
305                 310                 315                 320
Met Val His Tyr Gln His Gln Leu Leu Ser His Leu His Glu Thr Leu
                325                 330                 335
Leu Asp Glu Ala Ile Thr Ala Arg Trp Ser Glu Pro Phe Phe Ile Glu
            340                 345                 350
His Ala Asn Leu Lys Ala Lys Ile Glu Asp Leu Thr Lys Gln Tyr Asp
        355                 360                 365
Ile Leu Asn Ala Ala Phe Asn Lys Ser Leu Gln Gln Asp Glu Ala Leu
    370                 375                 380
Arg Ser Gln Leu Glu Lys Arg Ala Tyr Leu Phe Pro Ile Pro Asn Asn
385                 390                 395                 400
Asp Glu Asn Ala Lys Thr Lys Glu Ser Gln Leu Leu Asp Ser Glu Asn
                405                 410                 415
Asp Ser Asn Ser Glu Phe Gln Glu Ile Ile Asn Lys Gly Leu Glu Ala
            420                 425                 430
Ala Asn Lys Arg Arg Ala Asp Ala Lys Ser Lys Phe Tyr Thr Glu Asp
        435                 440                 445
Glu Thr Ser Asp Lys Ile Phe Ser Ile Trp Lys Pro Thr Lys Asn Leu
    450                 455                 460
Ala Leu Glu Asp Leu Trp Arg Val His Glu Ala Cys Asn Glu Glu Gln
465                 470                 475                 480
Gln Ala Leu Leu Leu Glu Asp Tyr Met Ser Tyr Lys Thr Ser Glu Cys
                485                 490                 495
Gln Ala Ala Leu Gln Lys Val Ser Gln Glu Leu Lys Ala Ala Gln Lys
            500                 505                 510
Ser Phe Ala Val Leu Glu Lys His Ala Leu Asp Arg Ser Tyr Glu Ser
        515                 520                 525
Ser Val Ala Thr Met Asp Leu Ala Arg Ala Asn Gln Glu Thr His Arg
    530                 535                 540
Leu Leu Asn Ile Leu Ser Glu Leu Gln Gln Leu Ala Gln Tyr Leu Leu
545                 550                 555                 560
Asp Asn His
```

<210> 107
<211> 358
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 107

```
Met Arg Lys Thr Val Ile Val Ala Met Ser Gly Gly Val Asp Ser Ser
                  5                  10                  15
Val Val Ala Tyr Leu Leu Lys Lys Gln Gly Glu Tyr Asn Val Val Gly
             20                  25                  30
Leu Phe Met Lys Asn Trp Gly Glu Gln Asp Glu Asn Gly Glu Cys Thr
         35                  40                  45
Ala Thr Lys Asp Phe Arg Asp Val Glu Arg Ile Ala Glu Gln Leu Ser
     50                  55                  60
Ile Pro Tyr Tyr Thr Val Ser Phe Ser Lys Glu Tyr Lys Glu Arg Val
 65                  70                  75                  80
Phe Ser Arg Phe Leu Arg Glu Tyr Ala Asn Gly Tyr Thr Pro Asn Pro
                 85                  90                  95
Asp Val Leu Cys Asn Arg Glu Ile Lys Phe Asp Leu Leu Gln Lys Lys
            100                 105                 110
```

Val Arg Glu Leu Lys Gly Asp Phe Leu Ala Thr Gly His Tyr Cys Arg
115 120 125
Gly Gly Ala Asp Gly Thr Gly Leu Ser Arg Gly Ile Asp Pro Asn Lys
130 135 140
Asp Gln Ser Tyr Phe Leu Cys Gly Thr Pro Lys Asp Ala Leu Ser Asn
145 150 155 160
Val Leu Phe Pro Leu Gly Gly Met Tyr Lys Thr Glu Val Arg Arg Ile
165 170 175
Ala Gln Glu Ala Gly Leu Ala Thr Ala Thr Lys Lys Asp Ser Thr Gly
180 185 190
Ile Cys Phe Ile Gly Lys Arg Pro Phe Lys Ser Phe Leu Glu Gln Phe
195 200 205
Val Ala Asp Ser Pro Gly Asp Ile Ile Asp Phe Asp Thr Gln Gln Val
210 215 220
Val Gly Arg His Glu Gly Ala His Tyr Tyr Thr Ile Gly Gln Arg Arg
225 230 235 240
Gly Leu Asn Ile Gly Gly Met Glu Lys Pro Cys Tyr Val Leu Ser Lys
245 250 255
Asn Met Glu Lys Asn Ile Val Tyr Ile Val Arg Gly Glu Asp His Pro
260 265 270
Leu Leu Tyr Arg Gln Glu Leu Leu Ala Lys Glu Leu Asn Trp Phe Val
275 280 285
Pro Leu Gln Glu Pro Met Ile Cys Ser Ala Lys Val Arg Tyr Arg Ser
290 295 300
Pro Asp Glu Lys Cys Ser Val Tyr Pro Leu Glu Asp Gly Thr Val Lys
305 310 315 320
Val Ile Phe Asp Val Pro Val Lys Ala Val Thr Pro Gly Gln Thr Val
325 330 335
Ala Phe Tyr Gln Gly Asp Ile Cys Leu Gly Gly Gly Val Ile Glu Val
340 345 350
Pro Met Ile His Gln Leu
355

<210> 108
<211> 267
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 108
Met Ser Arg Lys Pro Ala Ser Asn Ser Ser Arg Asn Thr Lys Arg Ser
5 10 15
Ser Asp Thr Ser Trp Glu Val Ile Ala Gln Asp Tyr Asn Lys Ala Val
20 25 30
Asp Arg Asp Gly His Phe Tyr His Lys Glu Val Ile Leu Pro Asn Leu
35 40 45
Leu Ser Lys Leu His Ile Ser Arg Ser Ser Ser Leu Val Asp Val Gly
50 55 60
Cys Gly Gln Gly Ile Leu Glu Lys His Leu Pro Lys His Leu Pro Tyr
65 70 75 80
Leu Gly Ile Asp Leu Ser Pro Ser Leu Leu Arg Phe Ala Lys Lys Ser
85 90 95
Ala Ser Ser Lys Ser Arg Arg Phe Leu His His Asp Met Thr Gln Pro
100 105 110
Val Pro Ala Asp His His Glu Gln Phe Ser His Ala Thr Ala Ile Leu
115 120 125
Ser Leu Gln Asn Met Glu Ser Pro Glu Gln Ala Ile Ala His Thr Ala

```
    130                 135                 140
Asn Leu Leu Ala Pro Gln Gly Arg Leu Phe Ile Val Leu Asn His Pro
145                 150                 155                 160
Cys Phe Arg Ile Pro Arg Leu Ser Ser Trp Leu Tyr Asp Glu Pro Lys
                165                 170                 175
Lys Leu Leu Ser Arg Lys Ile Asp Arg Tyr Leu Ser Pro Val Ala Val
            180                 185                 190
Pro Ile Val Val His Pro Gly Glu Lys His Ser Glu Thr Thr Tyr Ser
        195                 200                 205
Phe His Phe Pro Leu Ser Tyr Trp Val Gln Ala Leu Ser Asn His Asn
    210                 215                 220
Leu Leu Ile Asp Ser Met Glu Glu Trp Ile Ser Pro Lys Lys Ser Ser
225                 230                 235                 240

Gly Lys Arg Ala Arg Ala Glu Asn Leu Cys Arg Lys Glu Phe Pro Leu
                245                 250                 255
Phe Leu Phe Ile Ser Ala Leu Lys Ile Ser Lys
            260                 265


<210> 109
<211> 867
<212> PRT
<213> Chlamydia trachomatis serovar D

<400> 109
Met Glu Lys Phe Ser Asp Ala Val Ser Glu Ala Leu Glu Lys Ala Phe
                  5                  10                  15
Glu Leu Ala Lys Asn Ser Lys His Ser Tyr Val Thr Glu Asn His Leu
             20                  25                  30
Leu Lys Ser Leu Leu Gln Asn Pro Gly Ser Leu Phe Cys Leu Val Ile
         35                  40                  45
Lys Asp Val His Gly Asn Leu Gly Leu Leu Thr Ser Ala Val Asp Asp
     50                  55                  60
Ala Leu Arg Arg Glu Pro Thr Val Val Glu Gly Thr Ala Val Ala Ser
 65                  70                  75                  80
Pro Ser Pro Ser Leu Gln Gln Leu Leu Leu Asn Ala His Gln Glu Ala
                 85                  90                  95
Arg Ser Met Gly Asp Glu Tyr Leu Ser Gly Asp His Leu Leu Leu Ala
            100                 105                 110
Phe Trp Arg Ser Thr Lys Glu Pro Phe Ala Ser Trp Arg Lys Thr Val
        115                 120                 125
Lys Thr Thr Ser Glu Ala Leu Lys Glu Leu Ile Thr Lys Leu Arg Gln
    130                 135                 140
Gly Ser Arg Met Asp Ser Pro Ser Ala Glu Glu Asn Leu Lys Gly Leu
145                 150                 155                 160
Glu Lys Tyr Cys Lys Asn Leu Thr Val Leu Ala Arg Glu Gly Lys Leu
                165                 170                 175
Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg Thr Ile Gln Val
            180                 185                 190
Leu Ser Arg Arg Thr Lys Asn Asn Pro Met Leu Ile Gly Glu Pro Gly
        195                 200                 205
Val Gly Lys Thr Ala Ile Ala Glu Gly Leu Ala Leu Arg Ile Val Gln
    210                 215                 220
Gly Asp Val Pro Glu Ser Leu Lys Glu Lys His Leu Tyr Val Leu Asp
225                 230                 235                 240
Met Gly Ala Leu Ile Ala Gly Ala Lys Tyr Arg Gly Glu Phe Glu Glu
```

```
                245                 250                 255
Arg Leu Lys Ser Val Leu Lys Gly Val Glu Ala Ser Glu Gly Glu Cys
            260                 265                 270
Ile Leu Phe Ile Asp Glu Val His Thr Leu Val Gly Ala Gly Ala Thr
        275                 280                 285
Asp Gly Ala Met Asp Ala Ala Asn Leu Leu Lys Pro Ala Leu Ala Arg
    290                 295                 300
Gly Thr Leu His Cys Ile Gly Ala Thr Thr Leu Asn Glu Tyr Gln Lys
305                 310                 315                 320
Tyr Ile Glu Lys Asp Ala Ala Leu Glu Arg Arg Phe Gln Pro Ile Phe
                325                 330                 335
Val Thr Glu Pro Ser Leu Glu Asp Ala Val Phe Ile Leu Arg Gly Leu
            340                 345                 350
Arg Glu Lys Tyr Glu Ile Phe His Gly Val Arg Ile Thr Glu Gly Ala
        355                 360                 365
Leu Asn Ala Ala Val Val Leu Ser Tyr Arg Tyr Ile Thr Asp Arg Phe
    370                 375                 380
Leu Pro Asp Lys Ala Ile Asp Leu Ile Asp Glu Ala Ala Ser Leu Ile
385                 390                 395                 400
Arg Met Gln Ile Gly Ser Leu Pro Leu Pro Ile Asp Glu Lys Glu Arg
                405                 410                 415
Glu Leu Ser Ala Leu Ile Val Lys Gln Glu Ala Ile Lys Arg Glu Gln
            420                 425                 430
Ala Pro Ala Tyr Gln Glu Glu Ala Glu Asp Met Gln Lys Ala Ile Asp
        435                 440                 445
Arg Val Lys Glu Glu Leu Ala Ala Leu Arg Leu Arg Trp Asp Glu Glu
    450                 455                 460
Lys Gly Leu Ile Thr Gly Leu Lys Glu Lys Lys Asn Ala Leu Glu Asn
465                 470                 475                 480
Leu Lys Phe Ala Glu Glu Glu Ala Glu Arg Thr Ala Asp Tyr Asn Arg
                485                 490                 495
Val Ala Glu Leu Arg Tyr Ser Leu Ile Pro Ser Leu Glu Glu Glu Ile
            500                 505                 510
His Leu Ala Glu Glu Ala Leu Asn Gln Arg Asp Gly Arg Leu Leu Gln
        515                 520                 525
Glu Glu Val Asp Glu Arg Leu Ile Ala Gln Val Val Ala Asn Trp Thr
    530                 535                 540
Gly Ile Pro Val Gln Lys Met Leu Glu Gly Glu Ser Glu Lys Leu Leu
545                 550                 555                 560
Val Leu Glu Glu Ser Leu Glu Glu Arg Val Val Gly Gln Pro Phe Ala
                565                 570                 575
Ile Ala Ala Val Ser Asp Ser Ile Arg Ala Ala Arg Val Gly Leu Ser
            580                 585                 590
Asp Pro Gln Arg Pro Leu Gly Val Phe Leu Phe Leu Gly Pro Thr Gly
        595                 600                 605
Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Glu Leu Leu Phe Asn
    610                 615                 620
Lys Glu Glu Ala Met Ile Arg Phe Asp Met Thr Glu Tyr Met Glu Lys
625                 630                 635                 640
His Ser Val Ser Lys Leu Ile Gly Ser Pro Pro Gly Tyr Val Gly Tyr
                645                 650                 655
Glu Glu Gly Gly Ser Leu Ser Glu Ala Leu Arg Arg Arg Pro Tyr Ser
            660                 665                 670
Val Val Leu Phe Asp Glu Ile Glu Lys Ala Asp Lys Glu Val Phe Asn
        675                 680                 685
Ile Leu Leu Gln Ile Phe Asp Asp Gly Ile Leu Thr Asp Ser Lys Lys
    690                 695                 700
```

```
Arg Lys Val Asn Cys Lys Asn Ala Leu Phe Ile Met Thr Ser Asn Ile
705                 710                 715                 720
Gly Ser Gln Glu Leu Ala Asp Tyr Cys Thr Lys Lys Gly Thr Ile Val
                725                 730                 735
Asp Lys Glu Ala Val Leu Ser Val Val Ala Pro Ala Leu Lys Asn Tyr
            740                 745                 750
Phe Ser Pro Glu Phe Ile Asn Arg Ile Asp Asp Ile Leu Pro Phe Val
        755                 760                 765
Pro Leu Thr Thr Glu Asp Ile Val Lys Ile Val Gly Ile Gln Met Asn
    770                 775                 780
Arg Val Ala Leu Arg Leu Leu Glu Arg Lys Ile Ser Leu Thr Trp Asp
785                 790                 795                 800
Asp Ser Leu Val Leu Phe Leu Ser Glu Gln Gly Tyr Asp Ser Ala Phe
                805                 810                 815
Gly Ala Arg Pro Leu Lys Arg Leu Ile Gln Gln Lys Val Val Thr Met
            820                 825                 830
Leu Ser Lys Ala Leu Leu Lys Gly Asp Ile Lys Pro Gly Met Ala Val
        835                 840                 845
Glu Leu Thr Met Ala Lys Asp Val Val Val Phe Lys Ile Lys Thr Asn
    850                 855                 860
Pro Ala Val
865
```

<210> 110
<211> 1170
<212> DNA
<213> Chlamydia pneumoniae

<400> 110

```
atgaaaaaac tcttaaagtc ggcgttatta tccgccgcat ttgctggttc tgttggctcc 60
ttacaagcct tgcctgtagg gaacccttct gatccaagct tattaattga tggtacaata 120
tgggaaggtg ctgcaggaga tccttgcgat ccttgcgcta cttggtgcga cgctattagc 180
ttacgtgctg gattttacgg agactatgtt ttcgaccgta tcttaaaagt agatgcacct 240
aaaacatttt ctatgggagc caagcctact ggatccgctg ctgcaaacta tactactgcc 300
gtagatagac ctaacccggc ctacaataag catttacacg atgcagagtg gttcactaat 360
gcaggcttca ttgccttaaa catttgggat cgctttgatg ttttctgtac tttaggagct 420
tctaatggtt acattagagg aaactctaca gcgttcaatc tcgttggttt attcggagtt 480
aaaggtacta ctgtaaatgc aaatgaacta ccaaacgttt ctttaagtaa cggagttgtt 540
gaactttaca cagacacctc tttctcttgg agcgtaggcg ctcgtggagc cttatgggaa 600
tgcggttgtg caactttggg agctgaattc caatatgcac agtccaaacc taaagttgaa 660
gaacttaatg tgatctgtaa cgtatcgcaa ttctctgtaa acaaacccaa gggctataaa 720
ggcgttgctt tccccttgcc aacagacgct ggcgtagcaa cagctactgg aacaaagtct 780
gcgaccatca attatcatga atggcaagta ggagcctctc tatcttacag actaaactct 840
ttagtgccat acattggagt acaatggtct cgagcaactt ttgatgctga taacatccgc 900
attgctcagc caaaactacc tacagctgtt ttaaacttaa ctgcatggaa cccttcttta 960
ctaggaaatg ccacagcatt gtctactact gattcgttct cagacttcat gcaaattgtt 1020
tcctgtcaga tcaacaagtt taaatctaga aaagcttgtg gagttactgt aggagctact 1080
ttagttgatg ctgataaatg gtcacttact gcagaagctc gtttaattaa cgagagagct 1140
gctcacgtat ctggtcagtt cagattctaa                                  1170
```

<210> 111
<211> 2601
<212> DNA
<213> Chlamydia pneumoniae

<400> 111

```
atggagaaat tttccgatgc tgtctctgaa gctttagaga aggctttcga acttgctaaa 60
tcttcgaaac atacctatgt cacagaaaat cacctattac tggctttatt agaaaataca 120
gagtctctct tttatttggt aattaaggac attcatggga accctggttt gctcaatacg 180
gcagttaaag atgcgctctc acgagagccg actgtagttg aaggagaggt ggatcctaaa 240
ccttctccgg gtttacaaac ccttcttagg gatgccaaac aagaggcaaa gacattagga 300
gatgaataca tttctggaga tcatctgctg cttgcttttt ggagttcaaa caaagagcct 360
tttaattctt ggaagcaaac aacaaaagtt agttttaaag atcttaagaa tctgattact 420
aaaatacgac gaggaaatcg tatggattcg ccaagcgctg aaagtaattt tcagggttta 480
gaaaagtatt gtaaaaattt aacagcatta gctcgtgaag gtaaactgga tcctgtgatc 540
ggtagagatg aagaaattcg tagaaccatc caagtgcttt cccgtagaac taaaaataac 600
cctatgctta ttggtgagcc gggtgtaggg aaaactgcta tagcagaagg attagctctt 660
aggcttatcc agggtgatgt tcctgaatct ctcaaaggta aacagcttta tgtcttagat 720
atgggagctt tgattgcagg agctaagtat cgaggtgagt ttgaagaaag actaaagagt 780
gttttaaaag atgtagaatc tggagatggc gagcacatta tctttattga tgaggtgcat 840
actcttgttg gagcaggagc tactgatgga gctatggatg ctgcgaatct tttaaagcct 900
gcattagcaa gagggacgct acactgtatt ggcgcgacga ctttgaatga gtatcagaag 960
tatattgaaa aagatgctgc tttggaacgt cgatttcagc ctatttttgt gacagagcct 1020
tctttggagg atgctgtctt tattcttcgt ggactaagag aaaaatatga aattttccat 1080
ggagtcagga ttacagaggg ggctttgaat gccgcagtcc tactttccta tcgttatatc 1140
ccagatcgct ttcttccaga taaggctatc gatttgatag atgaagcggc aagtttaatt 1200
cgcatgcaaa ttggtagtct tcctcttcct attgatgaaa aggagagaga gcttgctgct 1260
ttgatcgtta agcaagaggc tataaaacgc gagcaatctc cttcctatca agaagaggcg 1320
gatgctatgc agaagtctat agatgctttg agagaggaat tagcatctct acgtttgggt 1380
tgggatgaag agaagaagtt gatttcgggg ctcaaggaaa aaaagaattc cttggaaagt 1440
atgaaatttt ctgaagagga ggcggagcgt gttgcagact ataatcgtgt agctgagctt 1500
cggtatagtt taattcccca acttgaagaa gaaatcaaac aggatgaagc ctctttaaat 1560
caaagagata accgtctcct tcaagaagaa gttgacgagc gattgattgc gcaagtggta 1620
gctaattgga cagggattcc tgtgcaaaaa atgctagaag gggaagctga gaaactgtta 1680
attcttgaag aatccttaga agaacgtgtg gtaggacagc cttttgcagt ctctgcggtt 1740
agtgattcta ttcgtgctgc acgtgtaggt ttaaatgatc ctcaacgtcc cttaggagtc 1800
tttttatttt tagggccaac aggggtagga aaaaccgagc ttgcaaaagc tcttgcagat 1860
cttcttttca ataaagagga agctatggtc cgcttcgata tgtcagagta tatggaaaag 1920
cattccattt ccaagcttat aggatcttct ccagggtatg tgggttatga ggaaggtggg 1980
agtctttctg aggctcttcg acgacgtccc tattcagtag ttctctttga tgagatagag 2040
aaagcagata aggaagttct aaatatcctt ttacaggttt ttgatgatgg gattcttacg 2100
gatgggaaaa aacgcaaagt aaattgtaaa aatgccttgt ttatcatgac atcaaatata 2160
ggttctccag aacttgcaga ttattgttca aaaaaaggaa gtgagcttac gaaagaagcg 2220
attctttctg tagtctctcc agtattgaaa agatacttga gccctgaatt tatgaaccga 2280
attgatgaga tacttccttt tgttccatta acgaaagaag atatcgtgaa aatagttggc 2340
attcaaatgc gaaggattgc ccagagatta aaggcacggc ggatcaattt atcttgggat 2400
gattctgtaa tattatttct tagtgaacag ggttatgaca gtgctttcgg agcccgccct 2460
ttaaaacgtt tgatccaaca aaaagttgtg atcttgcttt ctaaggcttt gcttaaagga 2520
gatattaaac ctgatacatc gattgagttg acgatggcaa aagaggtgct cgtatttaaa 2580
aaagtggaaa ctccttctta g                                          2601
```

<210> 112
<211> 389
<212> PRT
<213> Chlamydia pneumoniae

<400> 112

```
Met Lys Lys Leu Leu Lys Ser Ala Leu Leu Ser Ala Ala Phe Ala Gly
                  5                  10                  15
Ser Val Gly Ser Leu Gln Ala Leu Pro Val Gly Asn Pro Ser Asp Pro
            20                  25                  30
Ser Leu Leu Ile Asp Gly Thr Ile Trp Glu Gly Ala Ala Gly Asp Pro
```

```
          35                  40                  45
Cys Asp Pro Cys Ala Thr Trp Cys Asp Ala Ile Ser Leu Arg Ala Gly
     50                  55                  60
Phe Tyr Gly Asp Tyr Val Phe Asp Arg Ile Leu Lys Val Asp Ala Pro
 65                  70                  75                  80
Lys Thr Phe Ser Met Gly Ala Lys Pro Thr Gly Ser Ala Ala Ala Asn
                 85                  90                  95
Tyr Thr Thr Ala Val Asp Arg Pro Asn Pro Ala Tyr Asn Lys His Leu
            100                 105                 110
His Asp Ala Glu Trp Phe Thr Asn Ala Gly Phe Ile Ala Leu Asn Ile
        115                 120                 125
Trp Asp Arg Phe Asp Val Phe Cys Thr Leu Gly Ala Ser Asn Gly Tyr
    130                 135                 140
Ile Arg Gly Asn Ser Thr Ala Phe Asn Leu Val Gly Leu Phe Gly Val
145                 150                 155                 160
Lys Gly Thr Thr Val Asn Ala Asn Glu Leu Pro Asn Val Ser Leu Ser
                165                 170                 175
Asn Gly Val Val Glu Leu Tyr Thr Asp Thr Ser Phe Ser Trp Ser Val
            180                 185                 190
Gly Ala Arg Gly Ala Leu Trp Glu Cys Gly Cys Ala Thr Leu Gly Ala
        195                 200                 205
Glu Phe Gln Tyr Ala Gln Ser Lys Pro Lys Val Glu Glu Leu Asn Val
    210                 215                 220
Ile Cys Asn Val Ser Gln Phe Ser Val Asn Lys Pro Lys Gly Tyr Lys
225                 230                 235                 240
Gly Val Ala Phe Pro Leu Pro Thr Asp Ala Gly Val Ala Thr Ala Thr
                245                 250                 255
Gly Thr Lys Ser Ala Thr Ile Asn Tyr His Glu Trp Gln Val Gly Ala
            260                 265                 270
Ser Leu Ser Tyr Arg Leu Asn Ser Leu Val Pro Tyr Ile Gly Val Gln
        275                 280                 285
Trp Ser Arg Ala Thr Phe Asp Ala Asp Asn Ile Arg Ile Ala Gln Pro
    290                 295                 300
Lys Leu Pro Thr Ala Val Leu Asn Leu Thr Ala Trp Asn Pro Ser Leu
305                 310                 315                 320
Leu Gly Asn Ala Thr Ala Leu Ser Thr Thr Asp Ser Phe Ser Asp Phe
                325                 330                 335
Met Gln Ile Val Ser Cys Gln Ile Asn Lys Phe Lys Ser Arg Lys Ala
            340                 345                 350
Cys Gly Val Thr Val Gly Ala Thr Leu Val Asp Ala Asp Lys Trp Ser
        355                 360                 365
Leu Thr Ala Glu Ala Arg Leu Ile Asn Glu Arg Ala Ala His Val Ser
    370                 375                 380
Gly Gln Phe Arg Phe
385
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<210> 113
<211> 866
<212> PRT
<213> Chlamydia pneumoniae

<400> 113

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Met Glu Lys Phe Ser Asp Ala Val Ser Glu Ala Leu Glu Lys Ala Phe
                 5                  10                  15
Glu Leu Ala Lys Ser Ser Lys His Thr Tyr Val Thr Glu Asn His Leu
            20                  25                  30
```

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Leu Leu Ala Leu Leu Glu Asn Thr Glu Ser Leu Phe Tyr Leu Val Ile
          35                  40                  45
Lys Asp Ile His Gly Asn Pro Gly Leu Leu Asn Thr Ala Val Lys Asp
      50                  55                  60
Ala Leu Ser Arg Glu Pro Thr Val Val Glu Gly Glu Val Asp Pro Lys
 65                  70                  75                  80
Pro Ser Pro Gly Leu Gln Thr Leu Leu Arg Asp Ala Lys Gln Glu Ala
                 85                  90                  95
Lys Thr Leu Gly Asp Glu Tyr Ile Ser Gly Asp His Leu Leu Leu Ala
            100                 105                 110
Phe Trp Ser Ser Asn Lys Glu Pro Phe Asn Ser Trp Lys Gln Thr Thr
        115                 120                 125
Lys Val Ser Phe Lys Asp Leu Lys Asn Leu Ile Thr Lys Ile Arg Arg
    130                 135                 140
Gly Asn Arg Met Asp Ser Pro Ser Ala Glu Ser Asn Phe Gln Gly Leu
145                 150                 155                 160
Glu Lys Tyr Cys Lys Asn Leu Thr Ala Leu Ala Arg Glu Gly Lys Leu
                165                 170                 175
Asp Pro Val Ile Gly Arg Asp Glu Glu Ile Arg Arg Thr Ile Gln Val
            180                 185                 190
Leu Ser Arg Arg Thr Lys Asn Asn Pro Met Leu Ile Gly Glu Pro Gly
        195                 200                 205
Val Gly Lys Thr Ala Ile Ala Glu Gly Leu Ala Leu Arg Leu Ile Gln
    210                 215                 220
Gly Asp Val Pro Glu Ser Leu Lys Gly Lys Gln Leu Tyr Val Leu Asp
225                 230                 235                 240
Met Gly Ala Leu Ile Ala Gly Ala Lys Tyr Arg Gly Glu Phe Glu Glu
                245                 250                 255
Arg Leu Lys Ser Val Leu Lys Asp Val Glu Ser Gly Asp Gly Glu His
            260                 265                 270
Ile Ile Phe Ile Asp Glu Val His Thr Leu Val Gly Ala Gly Ala Thr
        275                 280                 285
Asp Gly Ala Met Asp Ala Ala Asn Leu Leu Lys Pro Ala Leu Ala Arg
    290                 295                 300
Gly Thr Leu His Cys Ile Gly Ala Thr Thr Leu Asn Glu Tyr Gln Lys
305                 310                 315                 320
Tyr Ile Glu Lys Asp Ala Ala Leu Glu Arg Arg Phe Gln Pro Ile Phe
                325                 330                 335
Val Thr Glu Pro Ser Leu Glu Asp Ala Val Phe Ile Leu Arg Gly Leu
            340                 345                 350
Arg Glu Lys Tyr Glu Ile Phe His Gly Val Arg Ile Thr Glu Gly Ala
        355                 360                 365
Leu Asn Ala Ala Val Leu Leu Ser Tyr Arg Tyr Ile Pro Asp Arg Phe
    370                 375                 380
Leu Pro Asp Lys Ala Ile Asp Leu Ile Asp Glu Ala Ala Ser Leu Ile
385                 390                 395                 400
Arg Met Gln Ile Gly Ser Leu Pro Leu Pro Ile Asp Glu Lys Glu Arg
                405                 410                 415
Glu Leu Ala Ala Leu Ile Val Lys Gln Glu Ala Ile Lys Arg Glu Gln
            420                 425                 430
Ser Pro Ser Tyr Gln Glu Glu Ala Asp Ala Met Gln Lys Ser Ile Asp
        435                 440                 445
Ala Leu Arg Glu Glu Leu Ala Ser Leu Arg Leu Gly Trp Asp Glu Glu
    450                 455                 460
Lys Lys Leu Ile Ser Gly Leu Lys Glu Lys Lys Asn Ser Leu Glu Ser
465                 470                 475                 480
Met Lys Phe Ser Glu Glu Glu Ala Glu Arg Val Ala Asp Tyr Asn Arg
```

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                485                 490                 495
Val Ala Glu Leu Arg Tyr Ser Leu Ile Pro Gln Leu Glu Glu Glu Ile
            500                 505                 510
Lys Gln Asp Glu Ala Ser Leu Asn Gln Arg Asp Asn Arg Leu Leu Gln
        515                 520                 525
Glu Glu Val Asp Glu Arg Leu Ile Ala Gln Val Val Ala Asn Trp Thr
    530                 535                 540
Gly Ile Pro Val Gln Lys Met Leu Glu Gly Glu Ala Glu Lys Leu Leu
545                 550                 555                 560
Ile Leu Glu Glu Ser Leu Glu Glu Arg Val Val Gly Gln Pro Phe Ala
                565                 570                 575
Val Ser Ala Val Ser Asp Ser Ile Arg Ala Ala Arg Val Gly Leu Asn
            580                 585                 590
Asp Pro Gln Arg Pro Leu Gly Val Phe Leu Phe Leu Gly Pro Thr Gly
        595                 600                 605
Val Gly Lys Thr Glu Leu Ala Lys Ala Leu Ala Asp Leu Leu Phe Asn
    610                 615                 620
Lys Glu Glu Ala Met Val Arg Phe Asp Met Ser Glu Tyr Met Glu Lys
625                 630                 635                 640
His Ser Ile Ser Lys Leu Ile Gly Ser Ser Pro Gly Tyr Val Gly Tyr
                645                 650                 655
Glu Glu Gly Gly Ser Leu Ser Glu Ala Leu Arg Arg Arg Pro Tyr Ser
            660                 665                 670
Val Val Leu Phe Asp Glu Ile Glu Lys Ala Asp Lys Glu Val Leu Asn
        675                 680                 685
Ile Leu Leu Gln Val Phe Asp Asp Gly Ile Leu Thr Asp Gly Lys Lys
    690                 695                 700
Arg Lys Val Asn Cys Lys Asn Ala Leu Phe Ile Met Thr Ser Asn Ile
705                 710                 715                 720
Gly Ser Pro Glu Leu Ala Asp Tyr Cys Ser Lys Lys Gly Ser Glu Leu
                725                 730                 735
Thr Lys Glu Ala Ile Leu Ser Val Val Ser Pro Val Leu Lys Arg Tyr
            740                 745                 750
Leu Ser Pro Glu Phe Met Asn Arg Ile Asp Glu Ile Leu Pro Phe Val
        755                 760                 765
Pro Leu Thr Lys Glu Asp Ile Val Lys Ile Val Gly Ile Gln Met Arg
    770                 775                 780
Arg Ile Ala Gln Arg Leu Lys Ala Arg Arg Ile Asn Leu Ser Trp Asp
785                 790                 795                 800
Asp Ser Val Ile Leu Phe Leu Ser Glu Gln Gly Tyr Asp Ser Ala Phe
                805                 810                 815
Gly Ala Arg Pro Leu Lys Arg Leu Ile Gln Gln Lys Val Val Ile Leu
            820                 825                 830
Leu Ser Lys Ala Leu Leu Lys Gly Asp Ile Lys Pro Asp Thr Ser Ile
        835                 840                 845
Glu Leu Thr Met Ala Lys Glu Val Leu Val Phe Lys Lys Val Glu Thr
    850                 855                 860
Pro Ser
865
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<210> 114
<211> 1179
<212> DNA
<213> Homo sapiens

<400> 114

taactctccc ctctcttctt aaaaaagagg ggagcctttt ttccttacaa agatacgcta 60
gctttttcct gaagaatctc atcaagagat atttgcattt tcccacggat aaaggcatcc 120
caaggaagcc ctggaatcac ttcatattct cccgttgcta gcattcgaca agggaaacca 180
aagattaaat cttccggtaa tccataggga ttgtggtccg aacacactcc ggaagaaaac 240
cattctcctt cttttggctg atatattgat cgagcagcct ctgctaaagc tcgtgctgca 300
gaagctgccg aagacttccc tcgtgcttcg attactgcac taccacgact ctgtacagaa 360
ggcaccataa tattctctaa ccaatcacga tccgctatcg tctctgcgat aggacggtca 420
ttaatcagag cttgcgtaaa atcaggcact tgtttggcgg agtgatttcc ccaaaccaca 480
acttgtgata cagccgataa aggtacttct gctctatgcg ataacatgct atgcatacga 540
ttctggtcca atcgtagcat cgcatgaaag ttctttctca ataatctggg agcatgattc 600
attgctatcc agcaattggt attcacaggg ttcccaacaa caaaaatctt tgcatcccgc 660
ttggctgttg tgttcaaagc ttttccttgc gtagcaaaaa tctccccatt tttctttaga 720
agatcccttc tctccattcc tgggcctcta ggaactgacc ctataaggaa tgccgcatca 780
atgccatcaa aagcatcatg caatgatgtc gttacctgca cacgctgtaa taaagggaaa 840
gcaccatcat ctagctccat gcgcacacca gataaagccc tttctgttcc aggaatatcg 900
tagatacgca gatcgatgcc acaatcaagg ccaaaaacat ctccatgagc cagagaaaat 960
agaaagctat aggctatttg ccctgttcct cctgttactg ctacactcac tgtttgagaa 1020
accataagcc accctctctt tacttttaca aaacgcacat actctcaaca ctacgtttgc 1080
aactaactaa ttttggtccc aacatacgtt tggatgataa aagaatcaag tacctagatt 1140
ccttagtaaa agcttttggc aaaaaaaagc tcatctatt 1179

<210> 115
<211> 772
<212> DNA
<213> Homo sapiens

<400> 115
gcaaaactgc tgacaaagct ggagacggaa ctacaacagc tactgttctt gctgaagcta 60
tctatacaga aggattacgc aatgtaacag ctggagcaaa tccaatggac ctcaaacgag 120
gtattgataa agctgttaag gttgttgttg atcaaatcag aaaaatcagc aaacctgttc 180
agcatcataa agaaattgct caagttgcaa caatttctgc taataatgat gcagaaatcg 240
ggaatctgat tgctgaagca atggagaaag ttggtaaaaa cggctctatc actgttgaag 300
aagcaaaagg atttgaaacc gttttggatg ttgttgaagg aatgaatttc aatagaggtt 360
acctctctag ctacttcgca acaaatccag aaactcaaga atgtgtatta gaagacgctt 420
tggttctaat ctacgataag aaaatttctg ggatcaaaga tttccttcct gttttacaac 480
aagttgctga atccggccgt cctcttctta ttatagcaga agacattgaa ggcgaagctt 540
tagctacttt ggtcgtgaac agaattcgtg gaggattccg ggtttgcgca gttaaagctc 600
caggctttgg agatagaaga aaagctatgt tggaagacat cgctatctta actggcggtc 660
aactcattag cgaagagttg ggcatgaaat tagaaaacgc taacttagct atgttaggta 720
aagctaaaaa agttatcgtt tctaaggaag acacgaccat cgtcgaagga at 772

<210> 116
<211> 487
<212> DNA
<213> Homo sapiens

<400> 116
gcagctcctg caaagccaca agctcctgtc gcacaaacac ggcattttaa aaagagccat 60
cagattttct ctcctaattt tacgcagtct tcccaacagg tgaataaacc tgaggaaaga 120
agacgtcctt tggagtctcg atacttacaa ggcgcggcta agcaggcagc tgctgcaaag 180
gaaaaaaagg ctcttgaaca ggaagtatcc aaacaagaag aagaagcttc taaactctgg 240
gaagagaaac agagttatgc tcgtcgtgct gtgaatgcca tcaatttcag tgtaagaaag 300
caaatagaag agcaacagaa aaccatttcc aatccaggaa atgaccagac tcttcctggg 360
aagaaagatc cacatacatc cggagaacct gttatccaaa cggtacaaga ctgttctcag 420
gatcaagaag aagagaaaaa agttctagag cgattaaaca aacgttctct gacgtgtcag 480

gatctta 487

<210> 117
<211> 1014
<212> DNA
<213> Homo sapiens

<400> 117
ctcgtgccga atcttctaac aagagaacaa gctcctttct ttcttttcta aacaaggttc 60
agcgctttct attaaaagaa accctattca gaccctatgc agcacatagt tttataaaaa 120
atttttctat taacagagga aaaataacct attgataaac agagcggtac aaggagatgc 180
aaataaagct gctttaggat ccttacctag attctagaaa atggttgcat gaatttgaac 240
aaacaaacta attaaaaatt aaaactgaaa aaaatagttt aaaacaacaa ctagaggata 300
ttttttcatg gcgctaaaag atacggcaaa aaaaatgact gacttgttgg aaagtatcca 360
acaaaatttg cttaaagcag aaaaaggaaa taaagccgca gcacaaagag ttcgtacaga 420
atctatcaaa ttagaaaaga tcgcgaaggt atatcgtaaa gagtccatta aagcagaaaa 480
aatgggctta atgaaaaaaa gcaaagccgc tgctaaaaaa gctaaagctg ctgctaagaa 540
gcctgttcgc gctacaaaaa cagtggctaa aaaagcttgt acaaaaagaa cttgtgctac 600
taaagcaaag gtcaaaccaa caaaaaaagc cgctcctaaa acaaaagtta aaacagcgaa 660
aaaaactcgc tcaacaaaaa aataatattt tagcgctttc tctttttttat agagggcact 720
tttatcaaca gggccctctt tcctcttctc attgatccct tctctttttt ttgttatcct 780
ttccgttctc gcaaaggcaa gtccttgcaa ataaaagtac aacctcacac ctcctttgga 840
ggaaaaacct ttcactttct ttaggattca agttgctctc ctgctatcgt aactgtaaac 900
attttggcgt ctgtggaggc tgttcatctc ctcaaatgga atatgcatcc tctttaaaaa 960
caaaagagct tgcgctccat aatttatttg cacctcttat cccatcccaa aata 1014

<210> 118
<211> 287
<212> DNA
<213> Homo sapiens

<400> 118
atgcaaataa agctgcttta ggatccttac ctagattcta gaaaatggtt gcatgaattt 60
gaacaaacaa actaattaaa aattaaaact gaaaaaaata gtttaaaaca acaactagag 120
gatatttttt catggcgcta aaagatacgg caaaaaaaat gactgacttg ttggaaagta 180
tccaacaaaa tttgcttaaa gcagaaaaag gaaataaagc cgcagcacaa agagttcgta 240
cagaatctat caaattagaa aagatcgcga aggtatatcg taaagag 287

<210> 119
<211> 1002
<212> DNA
<213> Homo sapiens

<400> 119
catatgcatc accatcacca tcacatgagt attcgaccta ctaatgggag tggaaatgga 60
tacccgtcta ttaatccttc taacgataat caatacggtc ttgtgcaatc gacctctggg 120
cctaattacg gaggccatac ggtatcttct cgaggaggat ttcaagggat atgcgtacga 180
atagccgatt tattccgtaa ctgtttctct cgtaatagag gcactactac tacgccatct 240
cgaactgtta tcactcaggc agatatttat catccgacta tttctggaca aggagctcaa 300
cctattgtct ctacaggaga taagaaatta gatagcgcaa ttattcaagc agatttgcgt 360
gcgcagaata aacagacttt ggctacacat attcaaagta agctaggttc tatggaggga 420
caatctcctc aagattataa agctggtgcg tatagtgcgc taagattgat gctgtttact 480
ccaggcgaaa ctactgtgag tagcgagcgg gaacgtcaag cgtgcgttac gggtcgggat 540
ctctgggaac aggctgcagg agatcttgct accaatggga atacagatgg gcttatgtta 600
atggctaacc tatctgtggg agggaagcat gtgcctgcgg ggcatttaag agaatacatg 660
gatactgtaa agggtacgtt tactgatgag aacgaggcta cagatcctac ggtagatgcc 720

attttagatt tagcagcaaa aatcgatgcg acggaattct ctagtcctgg ttcagggcaa 780
gtcattctta attatatagg aaattatgga caagtcgttt tagaaaacga ggagatgaac 840
cttcttgttt tagaagatca aaatgggcaa gatcctcaac gtgttcaaga taactcaaaa 900
gagttacaaa aactgttaga aaatgctcga aaaacagatc ctgagttata tttccaaaca 960
ctaactgtca taacttcttc tgttttctta gactaaggat cc 1002

<210> 120
<211> 1218
<212> DNA
<213> Homo sapiens

<400> 120
atgcatcacc atcaccatca cgtgagtagc ataagcccta taggggggaa ttctgggcca 60
gagggatttt ctagtgcatc tcgaggcgat gagattgatg atgtaccaga tagtgaagag 120
ggagagctag aagagcgcgt ttcggatcat gcagagtcta tcattaccga gagctcggaa 180
acgctgtttc gtactacttc ttcatcaggg gtcagtgaag atcttcagca acacgttagc 240
ttggaggaat ctccacgaca acgaggtttc cttggacgga tccgtgatgc agtagcttct 300
atttggaagc gtcgtgttgc acgaaggaat gaaaactatg atgtgaaaaa agcagaagag 360
cagcaaggga ttgtgcaata tctgcaggat tcgaaaatgc ctgctttaac gcgtgcctat 420
cgccatctcc gtgctttcaa ttctgcatgc ttacgtacga ttcgtgagtt tttcgctacc 480
atttttcgtg ctttaaggga tgcgtattat cgacattgta cacgttctgg gatcaacttt 540
tgtggagctg ataaagactc tttagaagtt cttgttgcgg tgggtttgct tttgcgtatg 600
gctaccttac gctcttttga acatgtcggt gggaattacg aagatcgatt agtaaataat 660
gatgctccgg tgacaggtgc ggggagaact cttgttgatg atgctgtaga cgatattgaa 720
tcgattttaa atacgagaac caactggcct caacatgtca tgatagggtt ttctcgtggt 780
ctcgttcaat tatgtgcgac tccttataat gcgacttctc aagaatgttt caagtcgatt 840
gttcgtttag aaaaagaaga cccttcttca gattattctc aagctttatt attagcaggg 900
ataatagatc gcttggcgga gaaagccccc atggctgcaa agtatgtttt ggatgcattg 960
cgtgttcgaa cttcggagct cataggagaa ctcattattc tcgatttgct tcctcctgta 1020
tggaaggttg gccgcggagg cgtattccct cctgtgaatg agcagctcgt tgtgcaaatt 1080
gttaatgcaa acgtagaacg attgcattcc actttcgctc atgagccaca agcttatttg 1140
cgtatgatcg aaggtttggt aaccaatttc tttttcttac ctagcgagga agatccttct 1200
tcggttggga atatctaa 1218

<210> 121
<211> 726
<212> DNA
<213> Homo sapiens

<400> 121
catatgcatc accatcacca tcacacaaag catggaaaac gcattcgtgg tatccaagag 60
acttacgatt tagctaagtc gtattctttg ggtgaagcga tagatatttt aaaacagtgt 120
cctactgtgc gtttcgatca aacggttgat gtgtctgtta aattagggat cgatccaaga 180
aagagtgatc agcaaattcg tggttcggtt tctttacctc acggtacagg taaagttttg 240
cgaattttag tttttgctgc tggagataag gctgcagagg ctattgaagc aggagcggac 300
tttgttggta gcgacgactt ggtagaaaaa atcaaaggtg gatgggttga cttcgatgtt 360
gcggttgcca ctcccgatat gatgagagag gtcggaaagc taggaaaagt tttaggtcca 420
agaaacctta tgcctacgcc taaagccgga actgtaacaa cagatgtggt taaaactatt 480
gcggaactgc gaaaaggtaa aattgaattt aaagctgatc gagctggtgt atgcaacgtc 540
ggagttgcga agctttcttt cgatagtgcg caaatcaaag aaaatgttga agcgttgtgt 600
gcagccttag ttaaagctaa gcccgcaact gctaaaggac aatatttagt taatttcact 660
atttcctcga ccatggggcc aggggttacc gtggatacta gggagttgat tgcgttataa 720
gaattc 726

<210> 122
<211> 330
<212> PRT
<213> Homo sapiens

<400> 122
Met His His His His His His Met Ser Ile Arg Pro Thr Asn Gly Ser
1 5 10 15
Gly Asn Gly Tyr Pro Ser Ile Asn Pro Ser Asn Asp Asn Gln Tyr Gly
20 25 30
Leu Val Gln Ser Thr Ser Gly Pro Asn Tyr Gly Gly His Thr Val Ser
35 40 45
Ser Arg Gly Gly Phe Gln Gly Ile Cys Val Arg Ile Ala Asp Leu Phe
50 55 60
Arg Asn Cys Phe Ser Arg Asn Arg Gly Thr Thr Thr Thr Pro Ser Arg
65 70 75 80
Thr Val Ile Thr Gln Ala Asp Ile Tyr His Pro Thr Ile Ser Gly Gln
85 90 95
Gly Ala Gln Pro Ile Val Ser Thr Gly Asp Lys Lys Leu Asp Ser Ala
100 105 110
Ile Ile Gln Ala Asp Leu Arg Ala Gln Asn Lys Gln Thr Leu Ala Thr
115 120 125
His Ile Gln Ser Lys Leu Gly Ser Met Glu Gly Gln Ser Pro Gln Asp
130 135 140
Tyr Lys Ala Gly Ala Tyr Ser Ala Leu Arg Leu Met Leu Phe Thr Pro
145 150 155 160
Gly Glu Thr Thr Val Ser Ser Glu Arg Glu Arg Gln Ala Cys Val Thr
165 170 175
Gly Arg Asp Leu Trp Glu Gln Ala Ala Gly Asp Leu Ala Thr Asn Gly
180 185 190
Asn Thr Asp Gly Leu Met Leu Met Ala Asn Leu Ser Val Gly Gly Lys
195 200 205
His Val Pro Ala Gly His Leu Arg Glu Tyr Met Asp Thr Val Lys Gly
210 215 220
Thr Phe Thr Asp Glu Asn Glu Ala Thr Asp Pro Thr Val Asp Ala Ile
225 230 235 240
Leu Asp Leu Ala Ala Lys Ile Asp Ala Thr Glu Phe Ser Ser Pro Gly
245 250 255
Ser Gly Gln Val Ile Leu Asn Tyr Ile Gly Asn Tyr Gly Gln Val Val
260 265 270
Leu Glu Asn Glu Glu Met Asn Leu Leu Val Leu Glu Asp Gln Asn Gly
275 280 285
Gln Asp Pro Gln Arg Val Gln Asp Asn Ser Lys Glu Leu Gln Lys Leu
290 295 300
Leu Glu Asn Ala Arg Lys Thr Asp Pro Glu Leu Tyr Phe Gln Thr Leu
305 310 315 320
Thr Val Ile Thr Ser Ser Val Phe Leu Asp
325 330

<210> 123
<211> 405
<212> PRT
<213> Homo sapiens

<400> 123
Met His His His His His His Val Ser Ser Ile Ser Pro Ile Gly Gly

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                  5                  10                  15
Asn Ser Gly Pro Glu Gly Phe Ser Ser Ala Ser Arg Gly Asp Glu Ile
             20                  25                  30
Asp Asp Val Pro Asp Ser Glu Glu Gly Glu Leu Glu Glu Arg Val Ser
         35                  40                  45
Asp His Ala Glu Ser Ile Ile Thr Glu Ser Ser Glu Thr Leu Phe Arg
     50                  55                  60
Thr Thr Ser Ser Ser Gly Val Ser Glu Asp Leu Gln Gln His Val Ser
 65                  70                  75                  80
Leu Glu Glu Ser Pro Arg Gln Arg Gly Phe Leu Gly Arg Ile Arg Asp
                 85                  90                  95
Ala Val Ala Ser Ile Trp Lys Arg Arg Val Ala Arg Arg Asn Glu Asn
            100                 105                 110
Tyr Asp Val Lys Lys Ala Glu Glu Gln Gln Gly Ile Val Gln Tyr Leu
        115                 120                 125
Gln Asp Ser Lys Met Pro Ala Leu Thr Arg Ala Tyr Arg His Leu Arg
    130                 135                 140
Ala Phe Asn Ser Ala Cys Leu Arg Thr Ile Arg Glu Phe Phe Ala Thr
145                 150                 155                 160
Ile Phe Arg Ala Leu Arg Asp Ala Tyr Tyr Arg His Cys Thr Arg Ser
                165                 170                 175
Gly Ile Asn Phe Cys Gly Ala Asp Lys Asp Ser Leu Glu Val Leu Val
            180                 185                 190
Ala Val Gly Leu Leu Leu Arg Met Ala Thr Leu Arg Ser Phe Glu His
        195                 200                 205
Val Gly Gly Asn Tyr Glu Asp Arg Leu Val Asn Asn Asp Ala Pro Val
    210                 215                 220
Thr Gly Ala Gly Arg Thr Leu Val Asp Asp Ala Val Asp Asp Ile Glu
225                 230                 235                 240
Ser Ile Leu Asn Thr Arg Thr Asn Trp Pro Gln His Val Met Ile Gly
                245                 250                 255
Phe Ser Arg Gly Leu Val Gln Leu Cys Ala Thr Pro Tyr Asn Ala Thr
            260                 265                 270
Ser Gln Glu Cys Phe Lys Ser Ile Val Arg Leu Glu Lys Glu Asp Pro
        275                 280                 285
Ser Ser Asp Tyr Ser Gln Ala Leu Leu Leu Ala Gly Ile Ile Asp Arg
    290                 295                 300
Leu Ala Glu Lys Ala Pro Met Ala Ala Lys Tyr Val Leu Asp Ala Leu
305                 310                 315                 320
Arg Val Arg Thr Ser Glu Leu Ile Gly Glu Leu Ile Ile Leu Asp Leu
                325                 330                 335
Leu Pro Pro Val Trp Lys Val Gly Arg Gly Gly Val Phe Pro Pro Val
            340                 345                 350
Asn Glu Gln Leu Val Val Gln Ile Val Asn Ala Asn Val Glu Arg Leu
        355                 360                 365
His Ser Thr Phe Ala His Glu Pro Gln Ala Tyr Leu Arg Met Ile Glu
    370                 375                 380
Gly Leu Val Thr Asn Phe Phe Phe Leu Pro Ser Glu Glu Asp Pro Ser
385                 390                 395                 400
Ser Val Gly Asn Ile
                405
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<210> 124
<211> 238
<212> PRT
<213> Homo sapiens

<400> 124
Met His His His His His His Thr Lys His Gly Lys Arg Ile Arg Gly
1 5 10 15
Ile Gln Glu Thr Tyr Asp Leu Ala Lys Ser Tyr Ser Leu Gly Glu Ala
20 25 30
Ile Asp Ile Leu Lys Gln Cys Pro Thr Val Arg Phe Asp Gln Thr Val
35 40 45
Asp Val Ser Val Lys Leu Gly Ile Asp Pro Arg Lys Ser Asp Gln Gln
50 55 60
Ile Arg Gly Ser Val Ser Leu Pro His Gly Thr Gly Lys Val Leu Arg
65 70 75 80
Ile Leu Val Phe Ala Ala Gly Asp Lys Ala Ala Glu Ala Ile Glu Ala
85 90 95
Gly Ala Asp Phe Val Gly Ser Asp Asp Leu Val Glu Lys Ile Lys Gly
100 105 110
Gly Trp Val Asp Phe Asp Val Ala Val Ala Thr Pro Asp Met Met Arg
115 120 125
Glu Val Gly Lys Leu Gly Lys Val Leu Gly Pro Arg Asn Leu Met Pro
130 135 140
Thr Pro Lys Ala Gly Thr Val Thr Thr Asp Val Val Lys Thr Ile Ala
145 150 155 160
Glu Leu Arg Lys Gly Lys Ile Glu Phe Lys Ala Asp Arg Ala Gly Val
165 170 175
Cys Asn Val Gly Val Ala Lys Leu Ser Phe Asp Ser Ala Gln Ile Lys
180 185 190
Glu Asn Val Glu Ala Leu Cys Ala Ala Leu Val Lys Ala Lys Pro Ala
195 200 205
Thr Ala Lys Gly Gln Tyr Leu Val Asn Phe Thr Ile Ser Ser Thr Met
210 215 220
Gly Pro Gly Val Thr Val Asp Thr Arg Glu Leu Ile Ala Leu
225 230 235

<210> 125
<211> 713
<212> DNA
<213> Chlamydia trachomatis

<400> 125
ataacaatcc ctcccaatca tcgttgaacg tacaaggagg agccatctat gccaaaacct 60
ctttgtctat tggatcttcc gatgctggaa cctcctatat tttctcgggg aacagtgtct 120
ccactgggaa atctcaaaca acagggcaaa tagcgggagg agcgatctac tcccctactg 180
ttacattgaa ttgtcctgcg acattctcta acaatacagc ctctatagct acaccgaaga 240
cttcttctga agatggatcc tcaggaaatt ctattaaaga taccattgga ggagccattg 300
cagggacagc cattacccta tctggagtct ctcgattttc agggaatacg gctgatttag 360
gagctgcaat aggaactcta gctaatgcaa atacacccag tgcaactagc ggatctcaaa 420
atagcattac agaaaaaatt actttagaaa acggttcttt tatttttgaa agaaaccaag 480
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ttgagtcttt aggatctgtt ctttttacag gaaataacgt tacagctaca caagctagtt 660
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<210> 126
<211> 780
<212> DNA
<213> Chlamydia trachomatis

<400> 126
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gaaagaagcc gacactcgag cgctcttctc ctaaaaatct tgtttttttct ctgcttccga 180
gttataacgc ggctgtctca taacccacac taacatgatg aaacctctac gtttcggtta 240
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catcattcat gctgatgatg cttgttatca ctctggttat gtacaggctc tcattgatat 420
gcatttctta gatagctgct gccaggtcat cgttgaaaac caaactgctt acttattttc 480
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tatttggtta ccacagaata ccatcctatt ctcgcctctt gtagcagata ctatccaagc 720
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<210> 127
<211> 433
<212> DNA
<213> Chlamydia trachomatis

<400> 127
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agaaatcgat gagaagcttt ttccctaaga aagatgatgc gtttcatcgg tctagttcgc 180
tattctactc tccaatggtt ccgcattttt gggcagagct tcgcaatcat tatgcaacga 240
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ctgttatatg ggagtcggag ggtcttttcc gcgcttatat ttcttcggtg actgatgggg 360
atggtaagag ccataaagta ggatttctaa gaattcctac atatagttgg caggacatgg 420
aagattttga tcc 433

<210> 128
<211> 803
<212> DNA
<213> Chlamydia trachomatis

<400> 128
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aaaagagttt taaaatggga aattctggtt tttatttgta taacactgaa aactgcgtct 120
ttgctgataa tatcaaagtt gggcaaatga cagagccgct caaggaccag caaataatcc 180
ttgggacaac atcaacacct gtcgcagcca aaatgacagc ttctgatgga atatctttaa 240
cagtctccaa taattcatca accaatgctt ctattacaat tggtttggat gcggaaaaag 300
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gcggcgttgt tctagctttg gtacgagaag gtgattctaa gccctgcgcg attagttatg 660
gatactcatc aggcattcct aatttatgta gtctaagaac cagtattact aatacaggat 720
tgactccgac aacgtattca ttacgtgtag gcggtttaga aagcggtgtg gtatgggtta 780
atgccctttc taatctcgtg ccg 803

<210> 129
<211> 842
<212> DNA

<213> Chlamydia trachomatis

<400> 129
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aaatattggc ttggataaag ctggtgttat ttgtgatgaa cgcggagtca tccctaccga 120
tgccacaatg cgcacaaacg tacctaacat ttatgctatt ggagatatca caggaaaatg 180
gcaacttgcc catgtagctt ctcatcaagg aatcattgca gcacggaata tagctggcca 240
taaagaggaa atcgattact ctgccgtccc ttctgtgatc tttaccttcc ctgaagtcgc 300
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cattatcagc catgagacta ctcagcagat cctaggagct tatgtgattg gccctcatgc 480
ctcatcactg atttccgaaa ttaccctagc agttcgtaat gaactgactc ttccttgtat 540
ttacgaaact atccacgcac atccaacctt agcagaagtt tgggctgaaa gtgcgttgtt 600
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gggcgggtat ttgctcaaac tgataatact atcaaaaata aagggcttcc tacagtctgt 780
gaggaagcct cttgtccgaa tcgcacccat tgttggtcta gacatacagc tacctatcta 840
gc 842

<210> 130
<211> 813
<212> DNA
<213> Chlamydia trachomatis

<400> 130
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aatccaccct taatcttttc aaagataaga tcttctgtag aatataaagc cgctccagac 120
aaagaagctt tcacgtcagt taatgtgatt ccagccttac tactatcccc aacaaaagca 180
atacctaaaa aagattctcc gtcacgagga gaatcaaggt tgctgctcgt aaaactacaa 240
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gttactgaga acaaagtact ttgctctacc ttaccgggaa gagtatccgc atctttctct 360
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accagctcat ttacagactg tcctccagca tgaagatcta cgcaactagc taacccgcta 540
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gacaagctcc agagacgaca ttagagcttt agaccgtgga atgtacaatg ctgactgctt 780
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<210> 131
<211> 1947
<212> DNA
<213> Chlamydia trachomatis

<400> 131
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gagttgttta tctgcccatc atcgatgata tcttctgaag tctttaatac cttcttacat 180
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agaaacattt gtatcttctg cagaacctct gttggtgaca caaatacggt aaacagtatt 960
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<210> 132
<211> 1278
<212> DNA
<213> Chlamydia trachomatis

<400> 132
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aagaatcgct tccccacgag catctccagc tgatactgct ttcaatgtta cagaaaactc 180
tacagtttct ttagaaccta atctaggtaa cgaatcgaat actactgtat tgcctgtaat 240
cgttccttta gttggtccag agaaggatac aggttgcagt tctttagaga atttaagcat 300
taaagaaaca tttgtatctt ctgcagaacc tctgttggtg acacaaatac ggtaaacagt 360
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tcctttccag taagttgtcg cttctgcgca agaagtacaa gtaccacagt cagagcagct 480
cttcacaaca acattatttg tgaattgtcc aggagtttgt gctcttacta gaactttata 540
ctgtagagac tctccaggat tcagttcttt cacagtccaa actactttat tacaagaaat 600
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tcctaagcgg tcaattttcc aaactagctt accatcagca gtaggagttg tcgctggatc 1260
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<210> 133
<211> 916

<212> DNA
<213> Chlamydia trachomatis

<400> 133
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ggccagttct tcaaaattat gccttcattt cagcaggaga gacacttact ctgaaagatt 120
tttcgagttt gatgttctcg aaaaatgttt cttgcggaga aaagggaatg atctcaggga 180
aaaccgtgag tatttccgga gcaggcgaag tgatttttg ggataactct gtggggtatt 240
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atgattctgt aaagtttgaa ggcaataaag gttctattgt ttttgattac aactttgcaa 780
aaggcagagg cggaagcatc ctaacgaaag aattctctct tgtagcagat gattcggttg 840
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ataagcacga atggag 916

<210> 134
<211> 751
<212> DNA
<213> Chlamydia trachomatis

<220>
<221> misc_feature
<222> 741
<223> n = A,T,C or G

<400> 134
agcctctggc gaaggagagc cataaaaagt gcctaccagc ggagaaacaa taaaatctcc 60
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atactgtgcg taagaactac ctttcaaaac tcttaaagat ttcatttgac gtcttccaag 720
ttttgtttta ggcaacattc nttaacagca t 751

<210> 135
<211> 410
<212> DNA
<213> Chlamydia trachomatis

<400> 135
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ataacaccac agaaggctcc tcttccaaat ctgacgtcct cggaggtgcg gtctatgcta 240

aaacattgtt taatctcgat agcgggagct ctagacgaac tgtcaccttc tccgggaata 300
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taaccattgc tactcctgta gtattttcta aaaactctgc aacaaacaat 410

<210> 136
<211> 2719
<212> DNA
<213> Chlamydia trachomatis

<400> 136
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<210> 137
<211> 2354
<212> DNA
<213> Chlamydia trachomatis

<400> 137
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ctaaatgtct ctaagtaagg atgtttttag gggaaatagc gattttcagt gttgagaagc 180
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gaatcgcgat gtctcaggaa gaacatgact taaagctttc tcagctaatt tcccatgtcc 1140
aatttcacgt cttcctgggg aaccaattct gccaacttct cctacggaga aaggagggaa 1200
gaaatactgt agatagaagc gagcggctcc atctccattc agatcttcga atcgctgtgc 1260
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gcaacttccg tgtgttcttg gaagaaaagg agtctctatg gaaatggggc gaatctctgt 1380
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aaccaagtta gcaataacgg attcctctaa ttctttcgag gcttgctcta gagcttcttt 1560
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cccgtcgtaa gaccaaacgt aggacaagac ttgaatatct tgcatgagtc tattaggaaa 2040
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catggagttg tcct 2354

<210> 138
<211> 898
<212> DNA
<213> Chlamydia trachomatis

<400> 138
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ccggaacagc taaaggtatt acagctttcc aaatggatat caagatagag ggaatcactc 120

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ataagattat ggagcaagct ctagcgcaag ctaaacaagg gcgtagtcat atccttaatc 180
ttatgacaca ggttctggcc tcccctaagg gaactgtttc taaatatgct ccgcgcattg 240
aaactatgca gatcaatacc tcaaaaatcg caacggtcat tggtcccgga ggaaaacaaa 300
tccgtcaaat tatcgagcgt tctggtgcgc aagttgacat caatgatgac ggcgtcatta 360
acatagctgc aagcacccaa gaatcgatta acaaagctaa agaacttatc gaaggattaa 420
ctggagaagt tgaagtcggt aaagtttata atggccgtgt tacatctatc gcaacatttg 480
gagtattcgt agaagtcctc ccaggaaaag aagggctctg tcatatttct gaattgtcta 540
aacaaaaagt agacaatatc tctggctttg tcaaagaagg agacaagctt gctgttaaac 600
tccttagcat taacgaaaaa ggccagttga agctgagcca tagggcaacg ctggaagatt 660
agtcttctat aggcgattcg ttgagaaaca aggctaagaa aggtttttct tagccttgtt 720
tattgtcttg taactaagct tctcaacact gaaaatcgct atttccccta aaaacatcct 780
tacttagaga catttagtta gacgctagct ttcctcacac acaaaaaaag agagccctaa 840
taaaagggct ctctcctaaa cctccagaag ggaagttatg tgctagtatt aaacttca   898


<210> 139
<211> 660
<212> PRT
<213> Chlamydia trachomatis

<400> 139
Met His His His His His His Met Glu Ser Gly Pro Glu Ser Val Ser
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Ser Asn Gln Ser Ser Met Asn Pro Ile Ile Asn Gly Gln Ile Ala Ser
            20                  25                  30
Asn Ser Glu Thr Lys Glu Ser Thr Lys Ala Ser Glu Ala Ser Pro Ser
        35                  40                  45
Ala Ser Ser Ser Val Ser Ser Trp Ser Phe Leu Ser Ser Ala Lys Asn
    50                  55                  60
Ala Leu Ile Ser Leu Arg Asp Ala Ile Leu Asn Lys Asn Ser Ser Pro
65                  70                  75                  80
Thr Asp Ser Leu Ser Gln Leu Glu Ala Ser Thr Ser Thr Ser Thr Val
                85                  90                  95
Thr Arg Val Ala Ala Lys Asp Tyr Asp Glu Ala Lys Ser Asn Phe Asp
            100                 105                 110
Thr Ala Lys Ser Gly Leu Glu Asn Ala Lys Thr Leu Ala Glu Tyr Glu
        115                 120                 125
Thr Lys Met Ala Asp Leu Met Ala Ala Leu Gln Asp Met Glu Arg Leu
    130                 135                 140
Ala Asn Ser Asp Pro Ser Asn Asn His Thr Glu Glu Val Asn Asn Ile
145                 150                 155                 160
Lys Lys Ala Leu Glu Ala Gln Lys Asp Thr Ile Asp Lys Leu Asn Lys
                165                 170                 175
Leu Val Thr Leu Gln Asn Gln Asn Lys Ser Leu Thr Glu Val Leu Lys
            180                 185                 190
Thr Thr Asp Ser Ala Asp Gln Ile Pro Ala Ile Asn Ser Gln Leu Glu
        195                 200                 205
Ile Asn Lys Asn Ser Ala Asp Gln Ile Ile Lys Asp Leu Glu Arg Gln
    210                 215                 220
Asn Ile Ser Tyr Glu Ala Val Leu Thr Asn Ala Gly Glu Val Ile Lys
225                 230                 235                 240
Ala Ser Ser Glu Ala Gly Ile Lys Leu Gly Gln Ala Leu Gln Ser Ile
                245                 250                 255
Val Asp Ala Gly Asp Gln Ser Gln Ala Ala Val Leu Gln Ala Gln Gln
            260                 265                 270
Asn Asn Ser Pro Asp Asn Ile Ala Ala Thr Lys Glu Leu Ile Asp Ala
        275                 280                 285
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Ala Glu Thr Lys Val Asn Glu Leu Lys Gln Glu His Thr Gly Leu Thr
    290                 295                 300
Asp Ser Pro Leu Val Lys Lys Ala Glu Glu Gln Ile Ser Gln Ala Gln
305                 310                 315                 320
Lys Asp Ile Gln Glu Ile Lys Pro Ser Gly Ser Asp Ile Pro Ile Val
                325                 330                 335
Gly Pro Ser Gly Ser Ala Ala Ser Ala Gly Ser Ala Ala Gly Ala Leu
            340                 345                 350
Lys Ser Ser Asn Asn Ser Gly Arg Ile Ser Leu Leu Leu Asp Asp Val
        355                 360                 365
Asp Asn Glu Met Ala Ala Ile Ala Leu Gln Gly Phe Arg Ser Met Ile
    370                 375                 380
Glu Gln Phe Asn Val Asn Asn Pro Ala Thr Ala Lys Glu Leu Gln Ala
385                 390                 395                 400
Met Glu Ala Gln Leu Thr Ala Met Ser Asp Gln Leu Val Gly Ala Asp
                405                 410                 415
Gly Glu Leu Pro Ala Glu Ile Gln Ala Ile Lys Asp Ala Leu Ala Gln
            420                 425                 430
Ala Leu Lys Gln Pro Ser Ala Asp Gly Leu Ala Thr Ala Met Gly Gln
        435                 440                 445
Val Ala Phe Ala Ala Ala Lys Val Gly Gly Gly Ser Ala Gly Thr Ala
    450                 455                 460
Gly Thr Val Gln Met Asn Val Lys Gln Leu Tyr Lys Thr Ala Phe Ser
465                 470                 475                 480
Ser Thr Ser Ser Ser Ser Tyr Ala Ala Ala Leu Ser Asp Gly Tyr Ser
                485                 490                 495
Ala Tyr Lys Thr Leu Asn Ser Leu Tyr Ser Glu Ser Arg Ser Gly Val
            500                 505                 510
Gln Ser Ala Ile Ser Gln Thr Ala Asn Pro Ala Leu Ser Arg Ser Val
        515                 520                 525
Ser Arg Ser Gly Ile Glu Ser Gln Gly Arg Ser Ala Asp Ala Ser Gln
    530                 535                 540
Arg Ala Ala Glu Thr Ile Val Arg Asp Ser Gln Thr Leu Gly Asp Val
545                 550                 555                 560
Tyr Ser Arg Leu Gln Val Leu Asp Ser Leu Met Ser Thr Ile Val Ser
                565                 570                 575
Asn Pro Gln Ala Asn Gln Glu Glu Ile Met Gln Lys Leu Thr Ala Ser
            580                 585                 590
Ile Ser Lys Ala Pro Gln Phe Gly Tyr Pro Ala Val Gln Asn Ser Ala
        595                 600                 605
Asp Ser Leu Gln Lys Phe Ala Ala Gln Leu Glu Arg Glu Phe Val Asp
    610                 615                 620
Gly Glu Arg Ser Leu Ala Glu Ser Gln Glu Asn Ala Phe Arg Lys Gln
625                 630                 635                 640
Pro Ala Phe Ile Gln Gln Val Leu Val Asn Ile Ala Ser Leu Phe Ser
                645                 650                 655
Gly Tyr Leu Ser
            660
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<210> 140
<211> 598
<212> PRT
<213> Chlamydia trachomatis

<400> 140
Met His His His His His His Met Ser Ile Arg Gly Val Gly Gly Asn

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Gly Asn Ser Arg Ile Pro Ser His Asn Gly Asp Gly Ser Asn Arg Arg
            20                  25                  30
Ser Gln Asn Thr Lys Gly Asn Asn Lys Val Glu Asp Arg Val Cys Ser
        35                  40                  45
Leu Tyr Ser Ser Arg Ser Asn Glu Asn Arg Glu Ser Pro Tyr Ala Val
    50                  55                  60
Val Asp Val Ser Ser Met Ile Glu Ser Thr Pro Thr Ser Gly Glu Thr
65                  70                  75                  80
Thr Arg Ala Ser Arg Gly Val Leu Ser Arg Phe Gln Arg Gly Leu Val
                85                  90                  95
Arg Ile Ala Asp Lys Val Arg Arg Ala Val Gln Cys Ala Trp Ser Ser
            100                 105                 110
Val Ser Thr Ser Arg Ser Ser Ala Thr Arg Ala Ala Glu Ser Gly Ser
        115                 120                 125
Ser Ser Arg Thr Ala Arg Gly Ala Ser Ser Gly Tyr Arg Glu Tyr Ser
    130                 135                 140
Pro Ser Ala Ala Arg Gly Leu Arg Leu Met Phe Thr Asp Phe Trp Arg
145                 150                 155                 160
Thr Arg Val Leu Arg Gln Thr Ser Pro Met Ala Gly Val Phe Gly Asn
                165                 170                 175
Leu Asp Val Asn Glu Ala Arg Leu Met Ala Ala Tyr Thr Ser Glu Cys
            180                 185                 190
Ala Asp His Leu Glu Ala Lys Glu Leu Ala Gly Pro Asp Gly Val Ala
        195                 200                 205
Ala Ala Arg Glu Ile Ala Lys Arg Trp Glu Lys Arg Val Arg Asp Leu
    210                 215                 220
Gln Asp Lys Gly Ala Ala Arg Lys Leu Leu Asn Asp Pro Leu Gly Arg
225                 230                 235                 240
Arg Thr Pro Asn Tyr Gln Ser Lys Asn Pro Gly Glu Tyr Thr Val Gly
                245                 250                 255
Asn Ser Met Phe Tyr Asp Gly Pro Gln Val Ala Asn Leu Gln Asn Val
            260                 265                 270
Asp Thr Gly Phe Trp Leu Asp Met Ser Asn Leu Ser Asp Val Val Leu
        275                 280                 285
Ser Arg Glu Ile Gln Thr Gly Leu Arg Ala Arg Ala Thr Leu Glu Glu
    290                 295                 300
Ser Met Pro Met Leu Glu Asn Leu Glu Glu Arg Phe Arg Arg Leu Gln
305                 310                 315                 320
Glu Thr Cys Asp Ala Ala Arg Thr Glu Ile Glu Glu Ser Gly Trp Thr
                325                 330                 335
Arg Glu Ser Ala Ser Arg Met Glu Gly Asp Glu Ala Gln Gly Pro Ser
            340                 345                 350
Arg Val Gln Gln Ala Phe Gln Ser Phe Val Asn Glu Cys Asn Ser Ile
        355                 360                 365
Glu Phe Ser Phe Gly Ser Phe Gly Glu His Val Arg Val Leu Cys Ala
    370                 375                 380
Arg Val Ser Arg Gly Leu Ala Ala Ala Gly Glu Ala Ile Arg Arg Cys
385                 390                 395                 400
Phe Ser Cys Cys Lys Gly Ser Thr His Arg Tyr Ala Pro Arg Asp Asp
                405                 410                 415
Leu Ser Pro Glu Gly Ala Ser Leu Ala Glu Thr Leu Ala Arg Phe Ala
            420                 425                 430
Asp Asp Met Gly Ile Glu Arg Gly Ala Asp Gly Thr Tyr Asp Ile Pro
        435                 440                 445
Leu Val Asp Asp Trp Arg Arg Gly Val Pro Ser Ile Glu Gly Glu Gly
    450                 455                 460
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Ser Asp Ser Ile Tyr Glu Ile Met Met Pro Ile Tyr Glu Val Met Asn
465 470 475 480
Met Asp Leu Glu Thr Arg Arg Ser Phe Ala Val Gln Gln Gly His Tyr
485 490 495
Gln Asp Pro Arg Ala Ser Asp Tyr Asp Leu Pro Arg Ala Ser Asp Tyr
500 505 510
Asp Leu Pro Arg Ser Pro Tyr Pro Thr Pro Pro Leu Pro Pro Arg Tyr
515 520 525
Gln Leu Gln Asn Met Asp Val Glu Ala Gly Phe Arg Glu Ala Val Tyr
530 535 540
Ala Ser Phe Val Ala Gly Met Tyr Asn Tyr Val Val Thr Gln Pro Gln
545 550 555 560
Glu Arg Ile Pro Asn Ser Gln Gln Val Glu Gly Ile Leu Arg Asp Met
565 570 575
Leu Thr Asn Gly Ser Gln Thr Phe Arg Asp Leu Met Lys Arg Trp Asn
580 585 590
Arg Glu Val Asp Arg Glu
595

<210> 141
<211> 788
<212> DNA
<213> Chlamydia trachomatis

<400> 141
gctttacgta gccatttgca ttaatgctcc gtctcaggaa cgtattcata ctcggatagc 60
gcgtcatcct ctaaaaagga aggaaatgac cgtgctttct acacatgccg aaggcggtaa 120
ggaagcaatt acccattgcc aagttctagc tacgaatgga cgattaagtg tggttgctct 180
atacccagaa acaggcagaa cccaccagct tcgtgtacat atgaagcacc tgggcacacc 240
gattctcgga gatcccgttt acgggatccc ctctataaat tttcgttatg gtcttgacaa 300
acaacaattg catgcctata gcttggtttt tgctcatccg gagagtgcgg agcgagtgaa 360
gctagtgaca aagcttccag acgatatgac ttccttaata gaaaaggaat ttagagaagg 420
tgtctctata ctggatggtt cgtgtgattg gtttaaaatc actaggtagt tttgtttttt 480
aagtaagaag tataaaatag attatagata ctatttttat ttttctttca caccttcaga 540
aaaaagcttg tgtaggattt gcttcgcatg aaagagtttt tagcgtacat tgtaaaaaat 600
cttgttgata agccagagga agtgcatctg aaagaggtgc agggaaccaa tacgattatc 660
tacgaattga ctgttgctaa gggagatatc ggtaaaatta tcggtaaaga aggacgcact 720
attaaggcta tccgtacttt attggtttcc gtagcaagtc gagataatgt gaaagtcagc 780
ctagaaat 788

<210> 142
<211> 788
<212> DNA
<213> Chlamydia trachomatis

<400> 142
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gcgtcatcct ctaaaaagga aggaaatgac cgtgctttct acacatgccg aaggcggtaa 120
ggaagcaatt acccattgcc aagttctagc tacgaatgga cgattaagtg tggttgctct 180
atacccagaa acaggcagaa cccaccagct tcgtgtacat atgaagcacc tgggcacacc 240
gattctcgga gatcccgttt acgggatccc ctctataaat tttcgttatg gtcttgacaa 300
acaacaattg catgcctata gcttggtttt tgctcatccg gagagtgcgg agcgagtgaa 360
gctagtgaca aagcttccag acgatatgac ttccttaata gaaaaggaat ttagagaagg 420
tgtctctata ctggatggtt cgtgtgattg gtttaaaatc actaggtagt tttgtttttt 480
aagtaagaag tataaaatag attatagata ctatttttat ttttctttca caccttcaga 540

aaaaagcttg tgtaggattt gcttcgcatg aaagagtttt tagcgtacat tgtaaaaaat 600
cttgttgata agccagagga agtgcatctg aaagaggtgc agggaaccaa tacgattatc 660
tacgaattga ctgttgctaa gggagatatc ggtaaaatta tcggtaaaga aggacgcact 720
attaaggcta tccgtacttt attggtttcc gtagcaagtc gagataatgt gaaagtcagc 780
ctagaaat 788

<210> 143
<211> 1754
<212> DNA
<213> Chlamydia trachomatis

<400> 143
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tcgaggaaac gttgtaaaaa tagcgctgca gtaatcgatc ctgcacgatt gctgccgata 180
tttttcatat ctgcaatatc tgaatgaagt gcctggtcat atttctctac caaaggcatt 240
ctccatagag cttccccggt ctctgatgaa gcttctgcta gatctcttgc caacacgtcg 300
ttatttgcaa aaaatccagc cacagattct cctaaagaaa caaccatagc acccgtcaag 360
gtagcaaagt caatgatgcg ggtaggatta caatatttca aagcatagga gatggcatct 420
gctaaaatca aacgcccttc cgcatcagtg ctgccaattt ctacagaaag gccggtcatt 480
ccaacatata catctcccat cttataggca gccgatccaa tcgcattctc tgtagctgga 540
atgatcccgg tcacattgat cggaagctcc aaggaagcta aagcagaaaa aattcctaga 600
acggtagccg ctccagccat gtcttccttc atggtaatca ttgccttccc aggtttcaaa 660
tctagtcctc cggaatcgaa tgttacccct ttaccaatga gtacggttct atctttagat 720
ttaggtttac cttggtaatc cagaacaata aaccgaggct caacagcagc gcccttggca 780
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tccagactcg cgaactcccc tgctagacct tttgctaccg cagcaagttt ttctggagtg 900
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gttgggagta aaatatttac aatcttacac ttagctttc ttaaaacagt agtagcctga 1200
gcgtaggctt ctaaaacggt tgttccggat acttcttcgc tcttccctag accaagaaga 1260
acaatttttt gttcttttgt gtgatcattt ccaaaaagaa aagccgtttc ccctttcttc 1320
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gcttcttgag ctttagaatt cttcatccaa aaaggaagaa caagagcatc cgctttcgat 1440
cgtttatccc aactcgcttg agaatagagt aataccacaa taacctcttt gttgaatcga 1500
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gcctgaccca ttctctgcag tagaaaaggc cagaacaagc aaaacaacat ggttttcatc 1620
tctacattat tccgagatga aaaaaaggac tataggaaag agtagtcttt ttagcaaata 1680
agctctgtta ctccatagac aagaagattc aagagcttct taagatatgg gattgaatca 1740
aatgaataga atag 1754

<210> 144
<211> 3037
<212> DNA
<213> Chlamydia trachomatis

<400> 144
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cagaaggaaa atcttgagat ttggctacct gccccttttt tctagcatcc cgaagacgct 180
tgggggtcgc cttttctgtt ttttcgccca tagatggcca gttgcttaag cgctataagg 240
aatacttcgc aagttaccgt atataaatgt ttttctcaag aaagaaggtg gcagatgctc 300
atcccattta taaacaaaga gtaaggggtt ctttagagaa cggaatattt tttttaaaga 360
gcgtttttca tgaagcacta atcttgcttt ttctttagaa tttctttttc cttaataata 420
aaaaggctgt gttagcctta agaaaaagct gtacaacttc ttaggtaatg aaaatgggac 480

aaacagagtg tggaatagta ggtcttccta atgtagggaa atcaggatta tttaatgcgt 540
tgacaggcgc acaagttgcc tcctgtaatt atcccttctg cacaatagat cctaatgtcg 600
gtattgtgcc tgttatcgat ccaaggttag agaccttagc acgtatcagt cagagccaaa 660
agattatcta tgcagatatg aagtttgtag acatcgcagg attagtaaaa ggagcagcta 720
gcggtgctgg cttagggaat cgtttttat cacatattcg agagactcac gctattgcgc 780
atgttgttcg ttgcttcgac aatgatgata taacccatgt atctgggaaa attgatcctg 840
aagaagatat agctgtgatt aatctagagc tcgtattagc agacttttct tctgccacta 900
gcgtgcgaga gaaacttgga aaacaggcta aagggaaaaa agatattggg cagttgctac 960
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ggggaagatt gattgttgca tatccaaaag atgccccgat tcctcgtcca tgagcaacct 1920
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ctccagattt gctaggaaac ttcgttaaaa aagaaagcaa agcttggtgt cctaaatgac 2400
acccatcgaa aaaacctata gtaacagatt ctacaggatt agaggacggg agcaggctgt 2460
agaataagtc catttgcatc acgtaaataa ggagatacat cgaacccggg ttcgtctaaa 2520
agattcccat caatacactg atcgatagag aagcttccac tacgtaaccg tcggagttct 2580
tctaaataag ctccgcatcc caacatattg cctaactcat gagcgatact gcggatgtat 2640
gttcctttgc tgcattgaac tacaaaatgt agacgagggt attcgtattt aaccaaacga 2700
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tataattttt ttccttgtac tttctttgca gagaacatag gagggacttg ttgaatttcc 2820
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gcatactctt tgtcttcaaa cagcatgatg tccgatagtc gggtgaattt tctccctatt 3000
agcataacca taacgcctgt agcaaaagga tctaaag 3037

<210> 145
<211> 1353
<212> DNA
<213> Chlamydia trachomatis

<400> 145
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aagaataatc tctgatttag tctttttcat atgtgcccat cagctctgcc gtagctatga 120
tatgtccgtc catagcttct aacagctgtt ctttggtcac tccttcttca tcggaaagca 180
caacatcgag cgcataagca taaaagtaat agcgatgctt cgcatctgga gggcaaggag 240
ggcagtatcc tatttctcca gcagtattta acccttggac agcaaaaatt tgtgctcctt 300
ctgcaagatt agagactgca ggcgaaaggt tatacactat ccagtgtatc cacaacccat 360
cctctcgaac actaggagga acatctggat cttcaacaat aagaacaaga cttttagcct 420

ctctagggac atcagaaaaa gacagcggtg gggagatccc aacgccctga cacgaatact 480
ttttaggaat cggacggccg taagaaaaag cttgtgaggt gagttgcata attgaggtct 540
cctgtattta gggccatgct ctgtaaagcg tggccctatt cttgtactac tgtcgtagtg 600
gatcagactg ggcttgcgct tctttacgga gaagggctac ctcataccga gtggcaatta 660
cttctctgaa caaggcgatc aaactgatgg aattaaaaat aaccatcccg caaaaaccta 720
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<210> 146
<211> 1627
<212> DNA
<213> Chlamydia trachomatis

<400> 146
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ctcttctttg ctcccagaaa aagcaaataa ctatgtcctt gcaatcaatc aagtagggtc 180
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ctgtagc 1627

<210> 147
<211> 1262
<212> DNA
<213> Chlamydia trachomatis

<400> 147
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ctcaataggt taggctctaa gtgattggcc caaacccatg tcaaaacagg tgctgctaag 420
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cg 1262

<210> 148
<211> 1596
<212> DNA
<213> Chlamydia trachomatis

<400> 148
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aagagttact aaaaacaccg tttttagcta aatgggtatg caaacagttt ttcctgaacg 180
aaagactagt tgcttcaaaa agtttttttac aaacggttta tgatcatctt atgacaggct 240
ctacagcaag attacggctt cgtaatcgaa cagttttggt aaaagctagg ggagtaatca 300
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aagaaaaaca cttcttgttt tttatctcta taattagagg tttataaaca aaataataaa 420
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aagactttca gaagtgaaga gccaacgcct cattac 1596

<210> 149
<211> 2624
<212> DNA
<213> Chlamydia trachomatis

<400> 149
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<210> 150
<211> 2052
<212> DNA
<213> Chlamydia trachomatis

<400> 150
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<210> 151
<211> 732
<212> DNA
<213> Chlamydia trachomatis

<400> 151
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aaacagcgtt gt 732

<210> 152
<211> 1326
<212> DNA
<213> Chlamydia trachomatis

<400> 152
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<210> 153
<211> 3141
<212> DNA
<213> Chlamydia trachomatis

<400> 153
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<210> 154
<211> 2275
<212> DNA
<213> Chlamydia trachomatis

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<211> 1909
<212> DNA
<213> Chlamydia trachomatis

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<210> 156
<211> 1157
<212> DNA
<213> Chlamydia trachomatis

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<211> 3957
<212> DNA
<213> Chlamydia trachomatis

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